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SEPTEMBER 1998

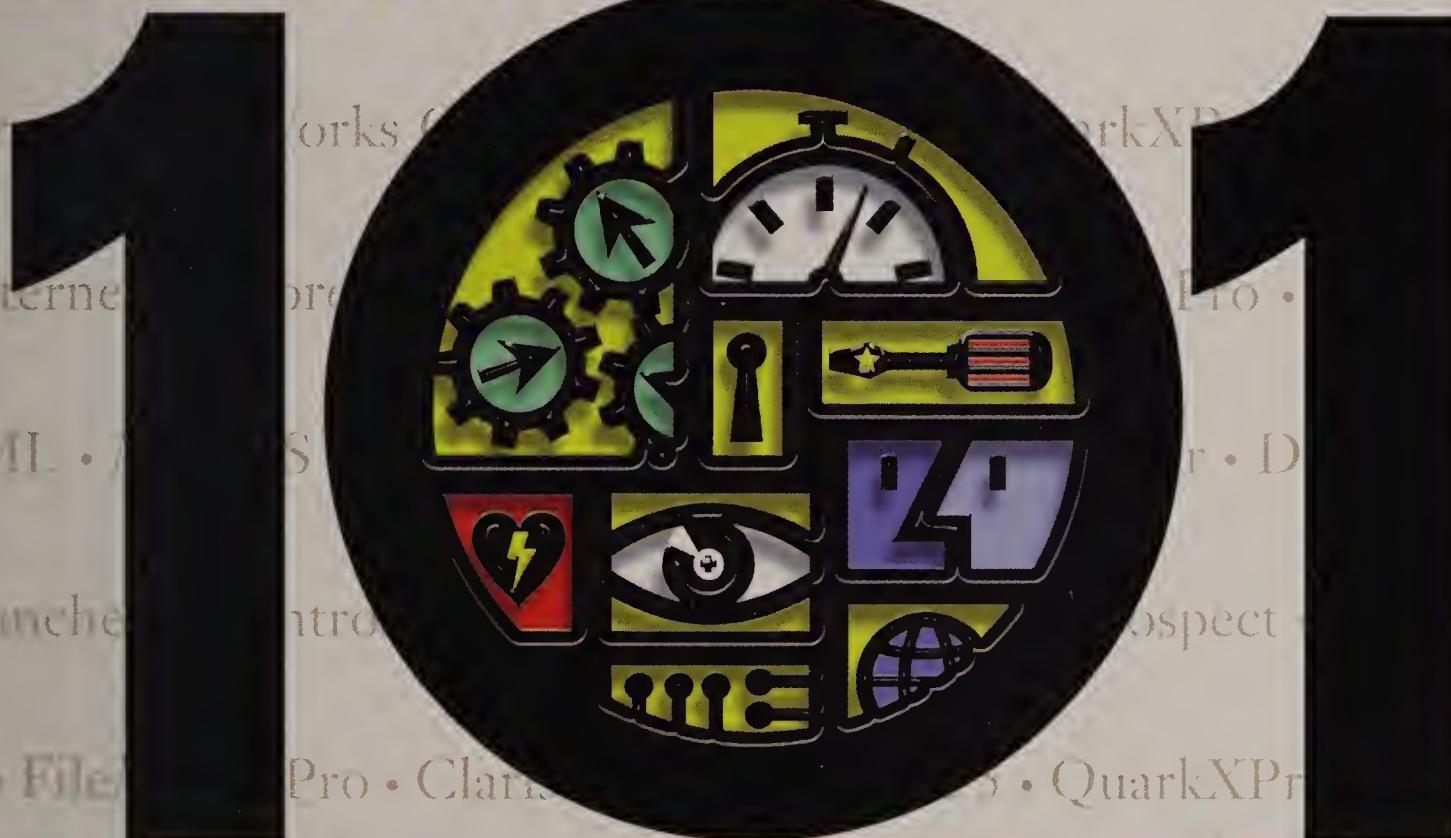
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COMPILED BY CATHY ABES

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BY CHRISTOPHER BREEN With version 3, Apple's QuickTime has grown into a truly impressive multimedia all-star. Find out why this extraordinary technology is potentially Apple's biggest cross-platform touchdown ever.

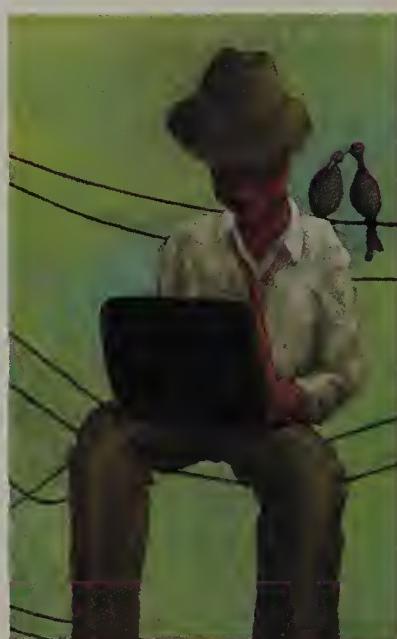
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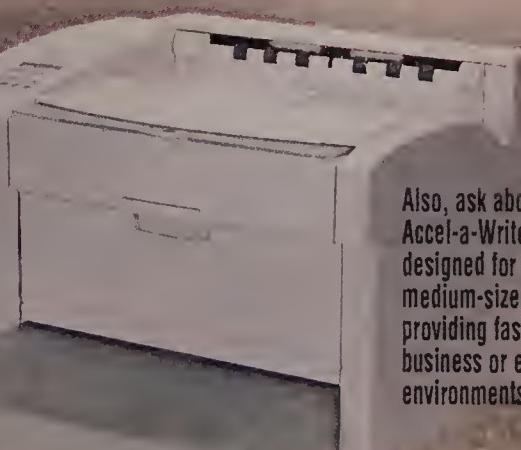
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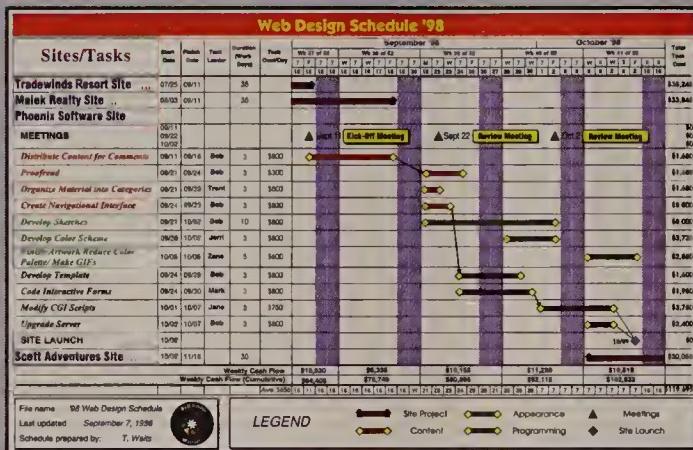


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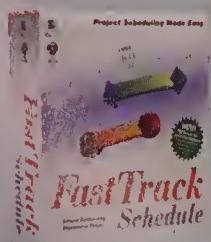
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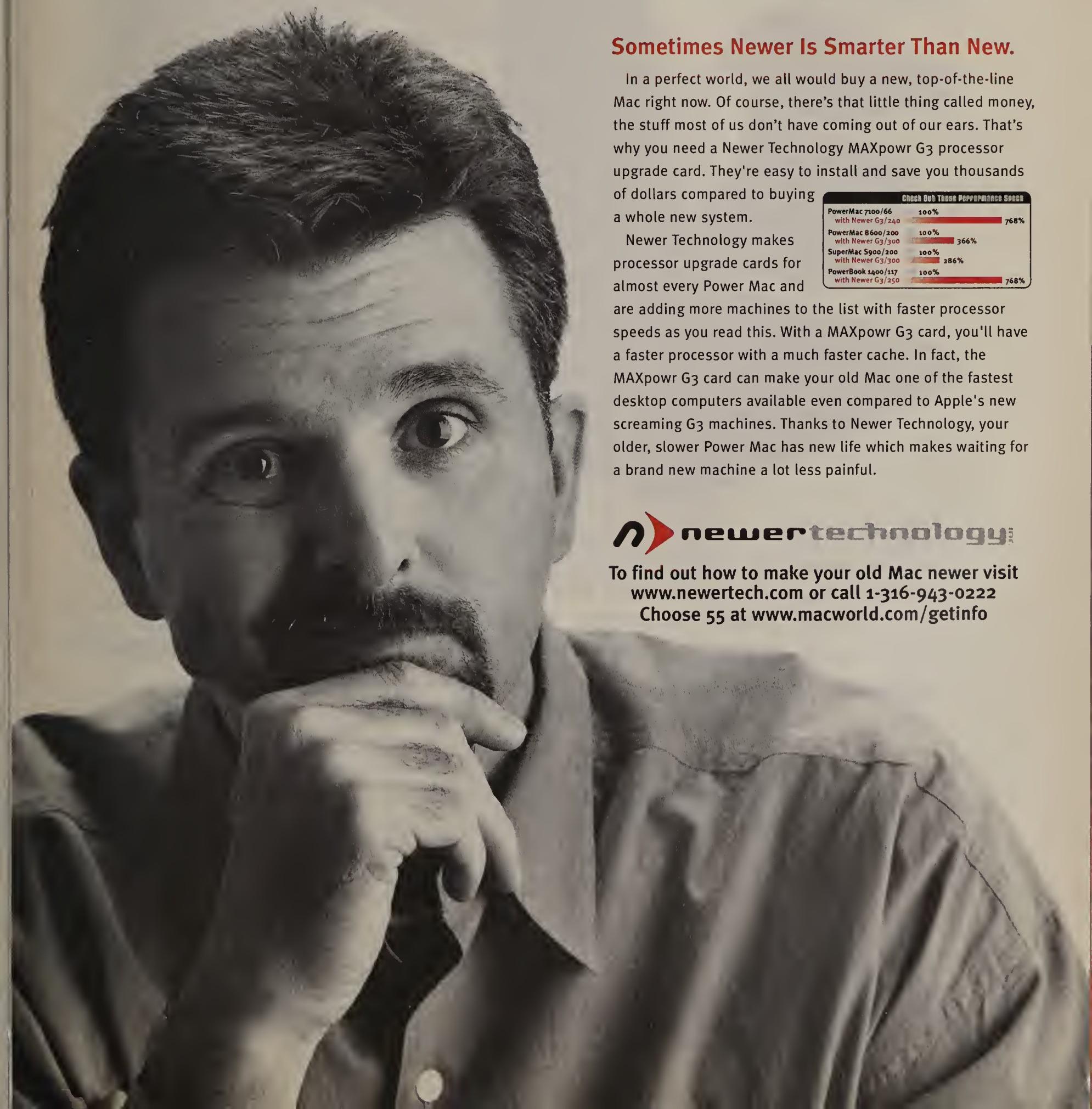
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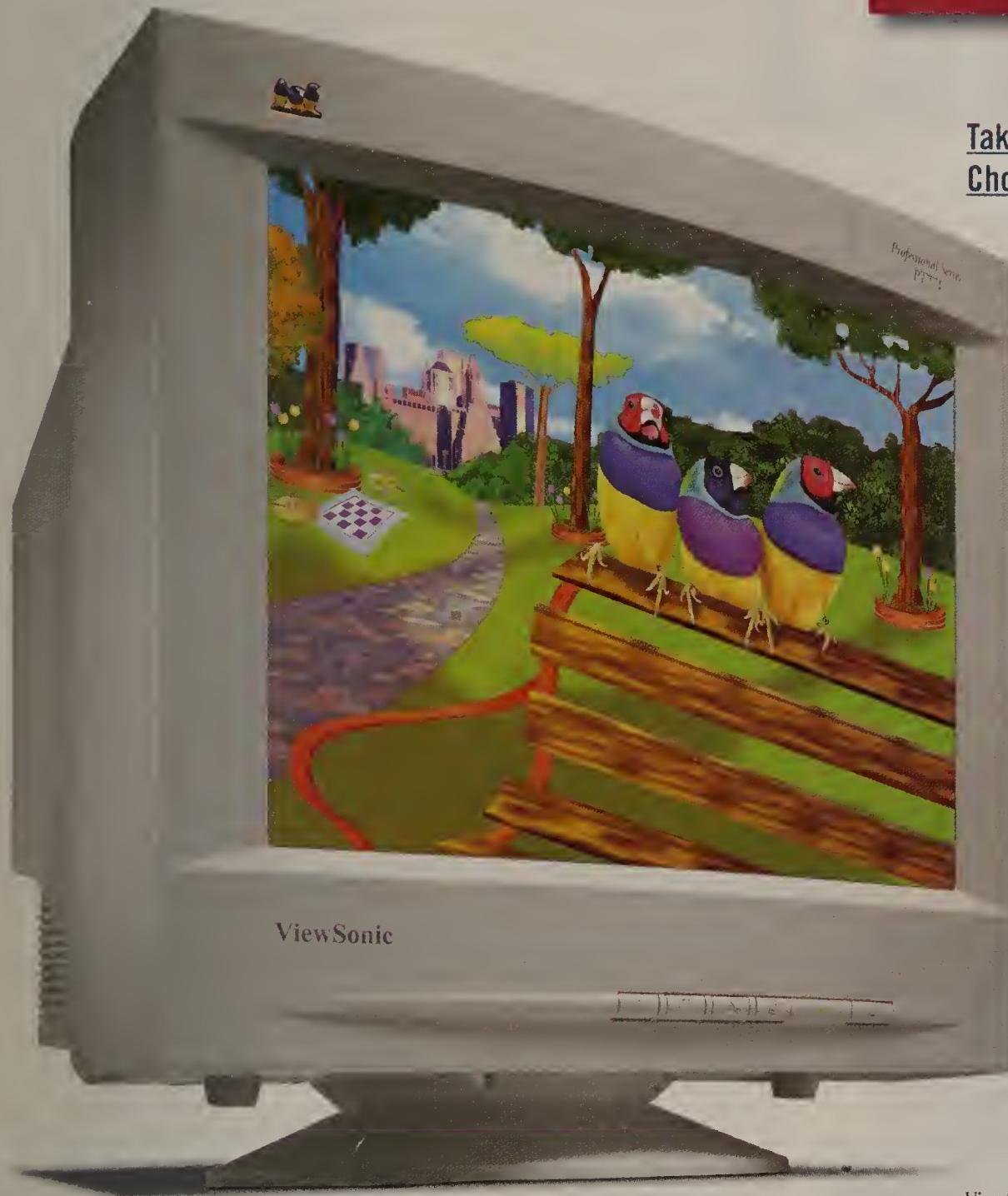
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Letters

Passionate about PowerBook G3's

I JUST BOUGHT A NEW APPLE PowerBook G3, and it is a laptop marvel ("Desktop Invaders," June 1998). The design is the most impressive of any notebook computer from any manufacturer. The 13.3-inch active-matrix screen is sharp, bright, and clear. The keyboard is comfortable and has the best feel of any I've used. My page layouts and image files fly with the G3 chip. My assistant is green with envy, as he still uses the 120MHz 603 desktop Mac we used to share.

The recent story in the *New York Times* claiming that fewer and fewer Mac owners would consider buying a new Mac is a crock—they never took into account that Apple would come out with this wonderful machine.

JOHN A. CHERMACK
New York, New York

THE NEW G3 POWERBOOKS ARE AN ergonomic disaster. They are the size of Mack trucks! Perhaps an aging Steve Jobs didn't have his glasses on when he approved the blueprints for their footprints. After waiting all this time for an insanely great PowerBook, I am disappointed that Apple was unable to match the compact designs of Wintel machines. Think small, Apple.

JAMES L. PERCELAY
New York, New York

YOUR FEATURE ON THE NEW PowerBook G3 didn't mention whether Apple brought back true dual-monitor support when an external monitor is connected, like the 500-series PowerBooks had.

This is part of what really made my PowerBook 540c viable as a desktop



machine. The continual omission of this feature is why I have not purchased a new PowerBook so far. Do the new PowerBook G3's have dual-monitor support?

M. OPPENHEIM
via Macworld Online

The PowerBook G3's don't support dual monitors directly, but you can hook up an additional monitor by installing a display card such as iXMicro's ix3D Road Rocket (www.ixmicro.com) into the PowerBook's CardBus slot.—Ed.

Looks Aren't Everything

I WAS DISAPPOINTED BY THE emphasis on interface in the Macromedia FreeHand 8 review (*Reviews*, June 1998). Your reviewer said that "FreeHand is the best drawing program on either platform, but at times I'd still rather be using Illustrator" because of its interface. That's like complaining that the clutch on a Mercedes feels a bit different from

the clutch on my Honda—but if I get my hands on a Mercedes, I'll adjust.

Besides, if you want to complain about interface, let's talk about CorelDraw—yeesh.

JUSTIN WILLS
Dallas, Texas

Deliver Me from Office 98

SORRY, DAVID POGUE, BUT I DON'T buy Microsoft's turning over a new leaf with Office 98 (*Reviews*, June 1998). For what little the program does, the hardware and RAM requirements are onerous. ClarisWorks/AppleWorks still captures the spirit of Mac computing better than Microsoft can ever hope to.

TOM SEIBOLD
Overland Park, Kansas

No PDFs, Please

AS A SERVICE-BUREAU OWNER, I cringe every time I read an article informing people that they can send PDF files to their service bureau ("Get Pre-press-Ready PDFs from QuarkXPress," *Create*, June 1998). I want to explain why that is a waste of time.

First, many service bureaus (like mine) already have hundreds of thousands of dollars invested in their existing PostScript Level 2 RIPs. A PDF file is worthless unless you have a PostScript Level 3 RIP. There is currently not enough incentive to go another \$50,000 into debt, and many service bureaus will not upgrade for a few years.

Second, there is no advantage to PDF which is not also given by PostScript print (PRN) files. And even so, both PDF and PRN can be problematic, since they take

continues

CORRECTIONS

- The Web site for 3D Gear's Cinema 4D XL (Reviews, June 1998) is www.cinema4dusa.com.
- GIF stands for "Graphics Interchange Format" ("The Web Publisher's Essential Tool Kit," May 1998).

control out of the hands of the service bureau technicians—who image hundreds of jobs per day and know the ins and outs of preparing film that printers can use. It puts responsibility for the film output in the hands of designers, whose job does not demand that same expertise.

Third, there are many possible settings when creating the PDF file. PDF was originally designed for use on RGB monitors, so you have to be sure to set up the files for high-resolution CMYK. You also need to include the fonts, and not allow ATM to use its generic Serif and Sans-Serif fonts. Incorrect settings can result in low-resolution images, poor color matches, or incorrect fonts. With a PDF, there is nothing the service bureau can do to fix these problems, and it may not be possible to detect them until the film is run.

Sure, PDFs sound like a good thing. You can't forget your graphics or fonts because they're included. But what you get out of the imagesetter is all in your hands, not the service bureau's. The service bureau can only send your file, pray that you did everything correctly, and charge you for whatever comes out.

CARL ARON
Columbia, Maryland

PDF has a way to go to become a universal pre-press format, but that's clearly the direction the prepress industry is heading. Of course, we're not there yet; so far, only a few printers and service bureaus are managing PDF into their workflow. But the article directs readers to contact their service bureau before preparing a PDF file—if the service bureau refuses them, the readers won't bother.

You also mentioned that you can't produce PDF files without a PostScript 3 RIP. This is not true—you can print to PostScript Level 2 RIPs using Acrobat Reader or Acrobat Exchange; it's just easier to print to a PS 3 RIP because it processes PDF directly. And there is a difference between a PDF and a PRN file—the former is more compact and less prone to PostScript errors, according to Adobe.—Stephen Beale

Mac Thanksgiving

D AVID POGUE'S COLUMN ABOUT Windows was perfectly timed (*The Desktop Critic*, June 1998). Last week, I broke down and bought Virtual PC and Windows 95, just to prepare myself for the possibility of a Mac-less future. I couldn't believe how primitive and horrendously unfriendly Windows 95 is. I had no idea how great we Mac users have it until I spent some time on "the other side."

After spending the better part of last week skirting around error messages, I decided I will never switch from the Macintosh.

SCOTT ROSE
Los Angeles, California

Speaking Up

I JUST READ YOUR ARTICLE ON multimedia speakers ("Easy Listening," June 1998). I thought it was a shame that you did not include the excellent Aura (www.aurasystems.com) Aspect range of speakers—in particular the Aspect 20's. The sound quality of these small speakers blows away those from Altec Lansing, Labtec, and Yamaha, and for only \$60.

ELIOT LOVELL
San Francisco, California

E ASY LISTENING" DID NOT MENTION speakers from Cambridge SoundWorks. They make a line of three different computer speakers and corresponding subwoofers that I think blow the socks off the systems you reviewed—all at prices under a few hundred dollars.

J. TEBB
New York, New York

Give Emulators a Break

AFTER READING YOUR REVIEW OF Virtual PC 2.0 and SoftWindows 95 5.0 (June 1998), I was astounded at the author's disappointment. Then I realized that he was running them on a Power Mac 7300/200. Wouldn't it make more sense to test these emulators on a new G3, especially considering that Virtual PC is optimized for the G3?

JEREMY WISE
Nepean, Ontario, Canada

Not testing the PC emulators on Macintosh G3's was a simple matter of timing—G3's were barely in their infancy at the time. But we will be upgrading to a G3 test platform in the near future.—Ed.

J OSEPH SCHORR'S REVIEW OF Virtual PC 2.0 was right on the money. It's true that an emulation program will be significantly slower than the real thing, so why buy a program like Virtual PC 2.0?

My company bought me a computer of my choosing for home use, and I chose a Power Computing PowerCenter Pro 210. The only stipulation was that it have file compatibility with the computers at work, which is a Windows 95 environment. Most of my files requiring compatibility are Microsoft Office and WordPerfect documents; both sets of programs work well with Virtual PC 2.0. For a fraction of the cost of a PC-compatibility card, Virtual PC is a good value. Slow? Maybe a little, compared with the newer Pentium systems, but Virtual PC 2.0 works, I don't have to use a PC at home, and I'm happy.

CAL CHANY
Bolingbrook, Illinois

Back in the Saddle Again

CONGRATULATIONS TO APPLE FOR the speed of Mac OS 8.1 and the G3 systems, to Motorola for the PowerPC 750 chip, and to the team that developed Microsoft Office 98 for Macintosh. With the advent of these three products, our company has decided to forgo a switch to PCs and will now invest in new G3's for the whole staff. It's been a long time since Mac users had reason to be this happy. The glory days are back!

BRUCE MALONE
Grand Rapids, Michigan

Letters should be sent to Letters, Macworld, 301 Howard St., 16th Fl., San Francisco, CA 94105; via fax, 415/442-0766; or electronically via CompuServe (70370,702), MCI Mail (294-8078), AppleLink (Macworld1), or the Internet (letters@macworld.com). Include a return address and daytime phone number. Due to the high volume of mail received, we can't respond personally to each letter. We reserve the right to edit all letters. All published letters become the property of Macworld. ■



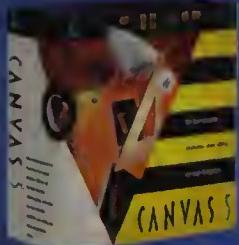
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Art That Works.

The purpose of the iMac is to make Internet access easy, and it does that with one-button simplicity. It also does a lot more. It kills the PC competition with data-crunching G3 speed.

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With its 233MHz PowerPC G3 chip and 512K backside cache, the iMac is up to twice as fast as comparable Pentium® II- or Celeron-based systems. Plus, the 66MHz system bus speeds information through the computer.



The 15" (13.8" viewable) display with shadow mask technology, 1024x768 resolution, and .28mm dot pitch delivers edge-to-edge sharpness and focus, with high refresh rates to reduce flicker and eye strain.

The iMac delivers premium sound through its built-in SRS stereo speakers. Music lovers also have the option of attaching external speakers.

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Actually, it's just the translucent keyboard (included). It has two 12Mbps USB ports. One is used to connect the mouse, while the other can be used to daisy-chain peripherals such as scanners, digital cameras, external modems, disk drives, even monitors - up to 127 (not included) devices!



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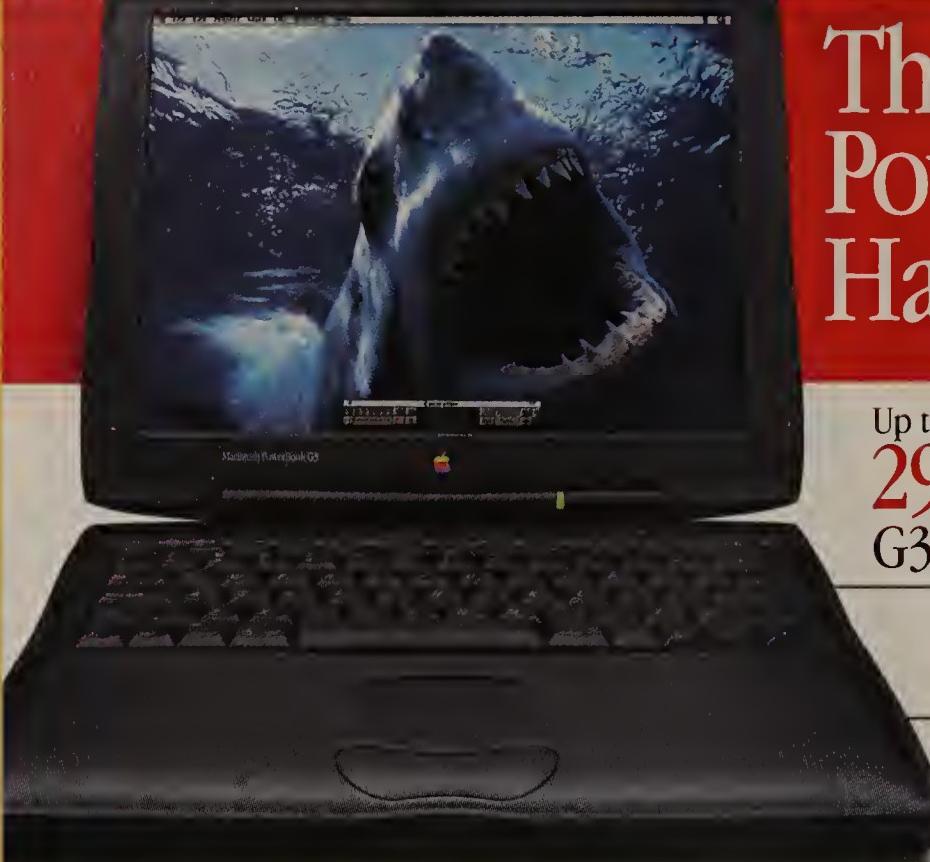
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An advertisement for G3 Minitower or Desktop computers. The top half features large red text 'PLUS FREE!' over '32MB RAM'. Below that is the word 'OR' in large red letters next to a software box for 'Virtual PC w/Windows 95'. To the right of the text are several green and gold RAM modules.

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MC Item#	Power Mac® G3 Model	Processor/ Speed	RAM Std/Max	Hard Drive	HD Type	VRAM Std/Max	Backside Cache	Backside Bus Speed	Expansion Slots	Int. Zip	Price
48158	G3/233 Desktop	G3/233MHz	32/192	4.0GB	IDE	2MB/6MB	512K	117MHz	3PCI /2 bay		\$1699
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"Despite identical chip speeds, the Apple G3 processor outperforms the Pentium."

—Newsweek May 1998

A small illustration of a person in a purple suit, possibly a scientist or engineer, standing next to a large yellow sphere.

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Power Macintosh G3 233	7.88
Compaq 5100 PII/300	4.26

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49272	64MB	179.95
49167	128MB	299.95
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49127	64MB	99.95
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48160	G3/266 Minitower	G3/266MHz	32/384	6.0GB	IDE	2MB/6MB	512K/133	3PCI/1 bay		24bit Video In/Out	2499
51394	G3/266 Minitower	G3/266MHz	128/384	4.0GB	U/W SCSI	8MB/8MB	512K/133	3PCI/1 bay*		Dual Monitor Support	3499
54812	G3/300 Minitower	G3/300MHz	64/384	4.0GB	U/W SCSI	6MB/6MB	1MB/150	3PCI/1 bay		3359	
54074	G3/300 Minitower	G3/300MHz	128/384	(2)4.0GB	U/W SCSI	8MB/8MB	1MB/150	3PCI/1 bay*		Dual Monitor Support	4599

52517	MAXpowr G3 Series 220MHz/110/512K.....	.699
	UMAX C500, C600	
52515	MAXpowr G3 Series 220MHz/110/S12K.....	.699
	Orange Micro	
54065	Orange PC SSO P200 MMX/32MB.....	\$1299
54072	Orange PC SSO P233 MMX/32MB.....	1499
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53628	ReSource UPS.....	\$89.95
52151	SurgeMaster w/Tel.....	14.95
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47782	Ultimate Rez - 8MB, PCI, VRAM	\$529
52334	Pro Rez - 8MB, PCI, SGRAM.....	279.95
52336	Mac Rocket - 4MB, PCI, SGRAM.....	219.95

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52389	Millennium II - 4MB, PCI	\$179.95
53416	Millennium II - 8MB, PCI.....	239.95

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40465	RenderPix 502-A	2799
39483	VIEWpower 16-bit for PowerBook 1400	239.95



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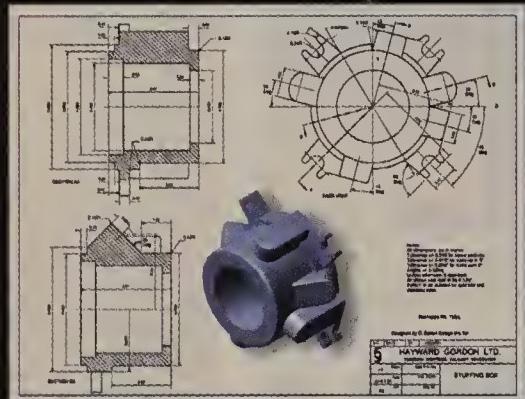
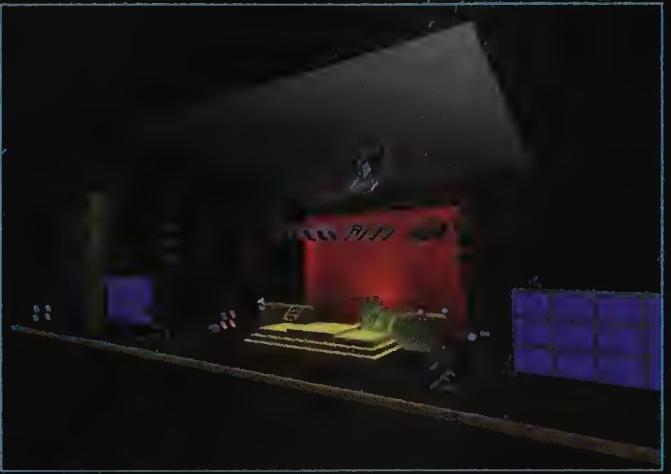
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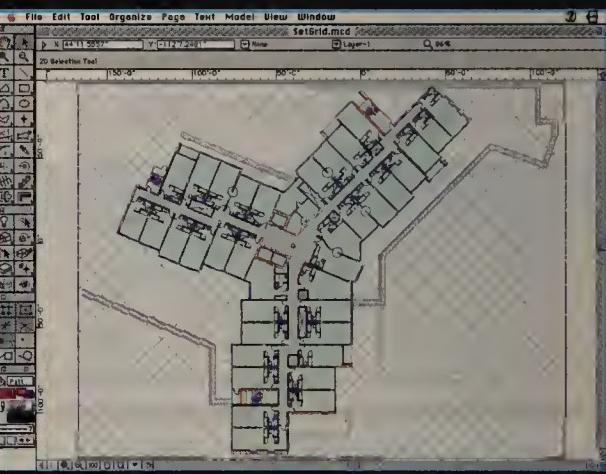
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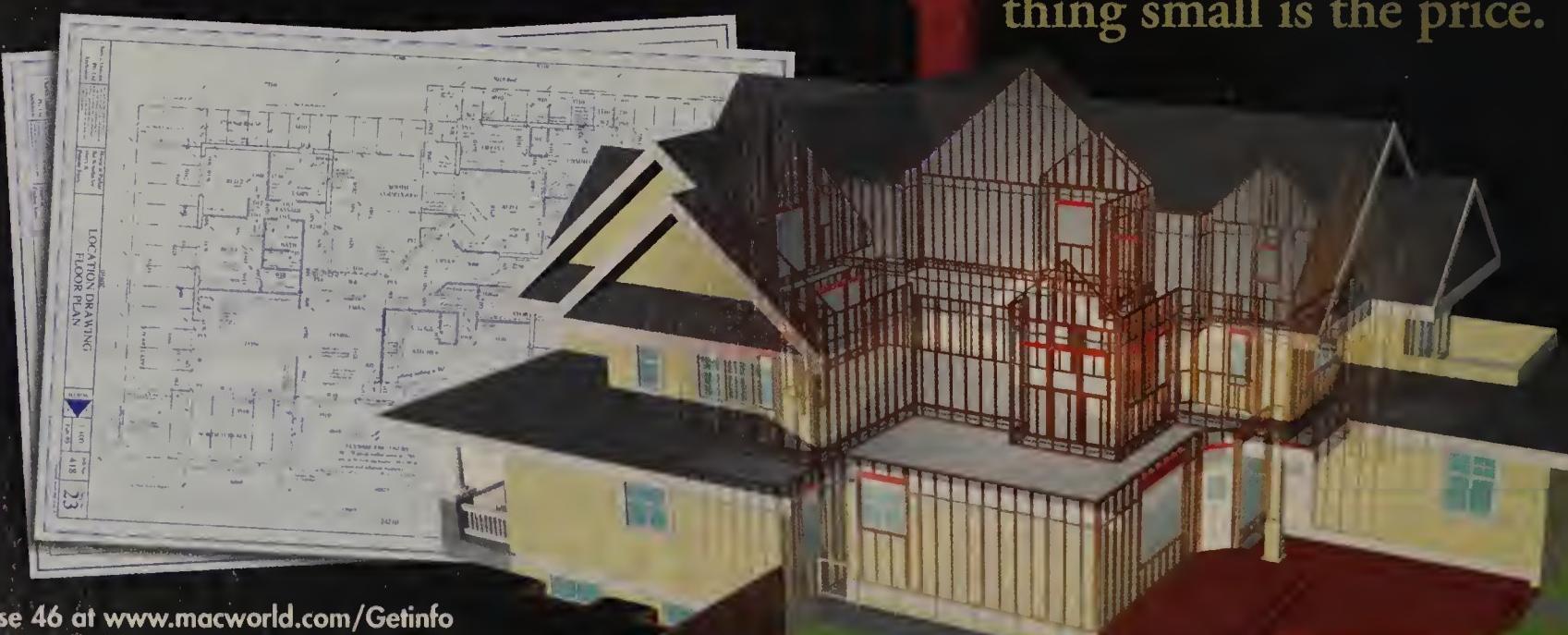
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by Andrew Gore

Six Slots of Separation

WHAT'S KEEPING APPLE FROM ITS MOST AVID USERS? THREE LITTLE SLOTS.

SIX DEGREES OF SEPARATION is a popular phrase based on the theory that everyone on Earth is connected to everyone else by no more than five people. For example, Bob is friends with Barry, who does taxes for Jeff, who plays golf with Anita, who works with Mark, Carol's son. And I know Carol. Therefore, even though Bob and I don't know each other, we are connected by only five other people.

The Six Degrees theory was devised to show that the world is a much smaller place than any of us realizes. In fact, all it might take to bring any two people together is one really good party. (And at that party, you could show off your knowledge of movie trivia by playing Six Degrees of Kevin Bacon . . . but I digress.)

That's why I wish someone would throw a really good party and invite both Apple's decision makers and its customers. It's time we got these kids together, if for no other reason than Apple might discover just how cut off it is from the needs of the Macintosh power user. Let's call this the Six Slots of Separation theory—six PCI slots, which the Mac's most avid users desperately need and the Power Mac G3 lacks.

Gee . . . Three?

While the iMac and PowerBook G3 both represent great strides for customer categories long neglected by Apple—consumers and mobile professionals—they do little to help the customers who've been most faithful to the Mac during its darkest days. I'm talking about Macintosh power users, the professionals and enthusiasts who must squeeze every last bit of potential out of their desktop Macs. And the current maximum number of slots on a Power Mac G3—three—is simply not enough to support the expansion needs of these users.

To illustrate just how quickly Mac power users hit the ceiling in current G3

desktop systems, let's play a little game of Six Slots of Separation: You've just bought a Power Mac G3, and you want to add on a few capabilities. So, naturally, you turn to add-on PCI cards. First you get a high-performance video card, to drive that 21-inch color monitor in 24-bit color at maximum resolution. And because you need the fastest hard drive subsystem possible for your G3 Mac, you get a RAID card. And because you want to send those big files you're rendering on that big screen and storing on those fast drives as fast as possible, you get a 100BaseT Ethernet card.

Next you want to get on the Internet, and fast, so you want to add an ISDN card. But not so fast, buddy! You've run

Mac platform and is now moving it forward again, both technologically and in terms of Apple's bottom line.

But when licensing ended, Apple made a promise to Macintosh customers—that while the end of licensing was critical to Apple's survival, the Macintosh installed base would not be asked to sacrifice all the benefits the cloners provided just so that Apple could live on. To Apple's credit, it has mostly lived up to that bargain, giving Mac customers better, less expensive products than even those available in the heyday of Mac cloning. Except in one critical area—the six-PCI-slot Mac.

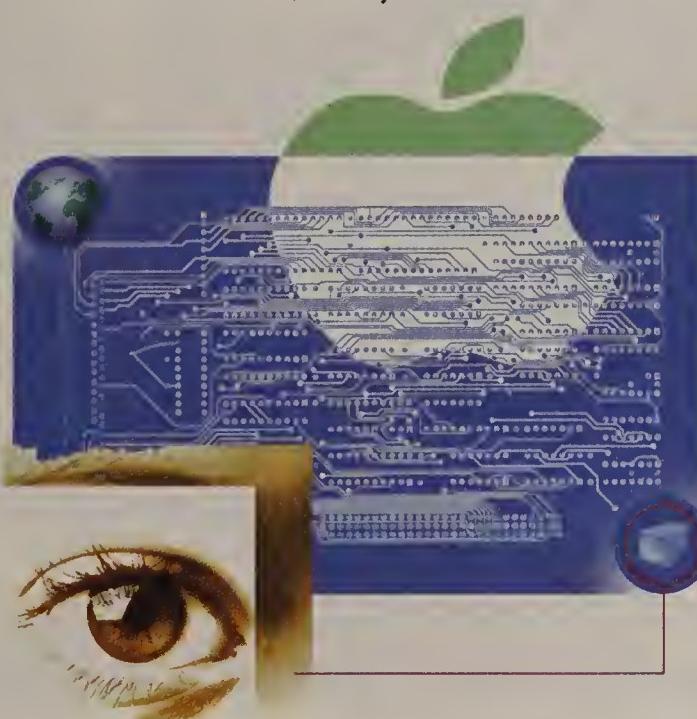
Right now, the only way to get six slots in a G3 Mac is to stick a G3-proces-

sor upgrade card in an older, six-slot Power Mac or clone. While this solution might be OK for now, in the long run users won't be willing to continue recycling old machines just to get expansion slots—especially if Mac OS X will run only on new G3 systems, which Apple has said is a possibility. They'll want a new Mac, and making due with three slots or buying an add-on external expansion chassis is not going to be enough.

All Apple has to do to reconnect with these users is deliver a box with more than three slots. It makes sense—after all, users want it and are willing to pay for it. By delivering such a machine, Apple will make them happy while making a nice profit on those high-margin, high-end systems.

But if Apple doesn't address this pressing need, and soon, the company may find that its customers are no longer content to play games. Then the separation between Apple and the Mac's power users may just become permanent. ■

If you mail visionthing@macworld.com, you'll join the lucky few who are only one degree of separation removed from Andrew Gore.



out of slots. Not only does ISDN fall by the wayside but you can also forget about a high-end audio card. Or a digital-video card. Or a 3Dfx game-accelerator card. Or an MPEG card for DVD playback. Or a FireWire card. You get the picture.

No Room at the Inn

In hindsight, few people could question the wisdom of the decision to shut down Mac OS licensing last year. Apple's recovery over the last 12 months has largely been because Apple has consolidated the

Some people think that Norton Utilities for Macintosh is the most advanced troubleshooting utility in the world.



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Jobs Touts Apple Comeback in Expo Keynote

APPLE CEO EXPECTS

IMAC SALES TO BOOST

MARKET GROWTH

by Stephen Beale

Apple is back on its feet and ready to ride the iMac to a bigger share of the computer market. That was the message delivered by Apple CEO Steve Jobs as he made a surprise live appearance July 8 during the keynote session at Macworld Expo New York.

While there were no dramatic announcements to equal last year's Microsoft deal, Jobs still had plenty of good news for Mac loyalists. Citing developers' renewed interest in the Mac, he noted that since the iMac's May 6 introduction, vendors have announced 177 Mac applications (see "Developers Bullish on Apple," in this section). These include many computer games, as well as Universal Serial Bus peripherals (see "Vendors Line Up with USB Peripherals," in this section) whose development was prompted by Apple's switch to USB for the iMac.

Hot Sellers Apple expects massive shipments of iMacs to bolster its position in the education market and also, Jobs hopes, to drive consumer pur-



chases. Although an estimated 10 million consumers currently use Macs, many of these machines are older models ripe for upgrading.

The company's new G3 PowerBooks appear to be hot sellers; so much so that Apple is struggling to fill orders. This—along with Jobs's expectation of a third consecutive quarterly profit, to be reported July 15—is likely to cause

more smiles on Wall Street.

Jobs also revealed some additional product plans:

- When the iMac ships August 15, it will include a 56-Kbps modem, not the 33.6-Kbps version originally planned—a clear response to earlier objections of Mac pundits to the initial choice.
- For the PowerBook G3, Apple will offer a DVD-ROM drive, whose software features

parental controls and an on-screen remote. For his demo, Jobs played a brief scene from *The Wizard of Oz*, saying that this is "the coolest way to watch movies on airplanes."

• Apple plans to ship Mac OS X Server—essentially the Rhapsody OS—later this year. Beta versions of Mac OS X will be available in early 1999, with the official release of the

continues

ONCE AGAIN, MACWORLD'S editors have selected the hottest new products introduced at Macworld Expo. To be eligible, the product had to make its public debut at Macworld Expo New York. We also had to see the product in action, although software evaluations were often based on beta versions.

iMAC

Apple (408/996-1010, www.apple.com) announced its sleek new consumer Mac several months ago but saved the official rollout for Macworld Expo. Few products at any Expo have generated as much excitement.

RAM DOUBLER 8

This \$45 memory-management utility from Connectix (415/571-5100, www.connectix.com) has a new interface, is faster, and is more flexible in allocating memory resources. Plus it's optimized to run Microsoft Office 98.

CONFLICT CATCHER 8

Upgraded to support Mac OS 8.1, Casady & Greene's (408/484-9228, www.casadyg.com) popular \$100 system utility adds improved file display and backtracking during conflict tests. It also simplifies system updates by letting you merge a newly installed "clean" System Folder with an existing System Folder.

QX-TOOLS 4

This \$150 package of handy QuarkXTensions from Extensis (503/274-2020, www.extensis.com) adds several enhancements to QuarkXPress, including object styles and the ability to import Microsoft Word tables, Microsoft Excel charts, and PDF files.

FONT RESERVE 2.0

The latest version of the DiamondSoft (415/381-3303, www.fontreserve.com) font-management utility offers faster perfor-

mance than its predecessor and supports AppleScript for workflow automation. The \$100 package also lets you print type specimens sorted by type foundry and other criteria.

WEBPAINTER 3

This upgrade from Totally Hip Software (604/685-6525, www.totallyhip.com) offers a full set of painting and Web animation features for just \$99.

MACLINK PLUS 10

The \$99 file-conversion utility from DataViz (203/268-0030,



www.dataviz.com) offers a new stand-alone application that lets you preview the contents of a file before you convert it. The software also decodes e-mail attachments—including .zip files—and features translators for Microsoft Word 98 and Excel 98.

PALMPILOT SOFTWARE

Thanks to improved MacPac 2 software (based on Claris Organizer) from Palm Computing (650/237-6000, www.palmpilot.com), Mac users are no longer second-class citizens when using a Palm III or PalmPilot organizer.

IX3D ROAD ROCKET

This \$349 CardBus-based graphics accelerator from iXMicron (408/369-8282, www.ixmicro.com) lets a pint-size PowerBook drive a big-screen monitor.

high-end operating system set for some time after midyear.

More Consumer Deals Ben Waldman, head of Microsoft's

Mac development team, told attendees that Microsoft will offer a \$100 rebate to consumers who purchase an iMac along with Microsoft Office 98. He also demonstrated Microsoft Internet Explorer 4.01, which exhibits faster performance and a few new features. You can now link to frequently visited Web sites by entering the first few letters of the URL; if multiple Web sites match your entry, a pop-up menu lets you choose the correct one. Search-engine results are displayed in a separate screen, simplifying navigation among found files.

Also boosting Apple's consumer focus was Disney Online president Richard Wolpert's announcement of a Mac version of Disney Blast Online (www.disneyblast.com/mac), a commercial Web site for children ages 3 to 12. After offering a free beta for an unspecified time, Disney will charge \$5.95 per month or \$39.95 per year.

systems

Vendors Line Up with USB Peripherals

iMAC SPURS MOVE TO HIGH-SPEED INTERFACE

by Macworld Staff

As Apple prepares to ship its much anticipated iMac, a host of vendors has announced plans to introduce products that support the iMac's Universal Serial Bus (USB) interface. Some of these products are USB

peripherals, while others are PCI cards and external hubs that allow current Macs to use USB devices.

- ADS Technologies (562/926-1928, www.adstech.com) plans to ship three USB products: a \$49.95 PCI card adapter for desktop Macs, an \$89 adapter for PowerBooks, and an \$89 external hub that adds four USB ports to your Mac.

- Alps Electric (408/432-6000, www.alpsusa.com) is showing the Alps MD-1300 Photographic-Quality Color Printer, a USB device that produces 8-by-10-inch dye-sublimation prints. Estimated street price is \$549.

- Creative Solutions (410/766-4079, www.creativesolutions-inc.com) has introduced a \$79 PCI card with two USB connectors.

- Iomega (801/778-1000, www.iomega.com) plans a USB version of the Zip drive, while Imation (888/466-3456, www.imation.com) has announced a USB version of its SuperDisk drive (see "Does the Floppy Have a Future?" in this section).

- Newer Technology (316/943-0222, www.newertech.com) plans to offer several USB products, including an adapter, two floppy drives—one with two serial ports and one without—a PCI card that allows PCI Power Macs to use USB peripherals, and a hub with seven powered ports (see "Developers Are Bullish on Apple," in this section).

- Hewlett-Packard (619/487-4100, www.hp.com) has announced a \$69 USB kit that lets you use its DeskJet 670 and 690 ink-jet printers with the iMac.

- Kodak (716/724-4000, www.kodak.com) has introduced two USB digital cameras, the DC220 and DC260 (see "More Cameras for Your Mac," in this section), as well as a \$169 USB video camera, the DVC232.

Does the Floppy Have a Future?

NEW FORMATS SEEK TO REPLACE 1.44MB DISKS

by Henry Bortman

Are floppies dead? You might think so, judging from Apple's consumer-targeted iMac, which will ship sans floppy drive. Apple figures that multimedia files are growing too large to fit on a single 1.44MB disk, and backing up a 4GB hard drive onto low-capacity floppies can be an exercise in absurdity (you'd need just under 3,000 disks to complete the job). Reasonably priced alternatives, such as Iomega's Zip drive, better fit the needs of today's users. Furthermore, the argument goes, as more people become networked, either on LANs or over the Internet, they'll have less need for removable disks.

Alive and Kicking Nevertheless, analysts at Disk/Trend, which monitors the storage industry, believe the floppy's future is assured for years to come. They note that word processing still accounts for 75 to 80 percent of the work done on personal computers—and that's not likely to change soon. For text documents, floppies work well as an exchange medium.

According to Disk/Trend's research, only 5 to 10 percent of the CPUs currently being sold ship with high-capacity removable-media drives. The analysis also notes that while about 9 million high-capacity disks were sold last year, customers purchased

95 million floppy disks.

Still, no one doubts that the 1.44MB 3.5-inch floppy eventually will be phased out. But what will replace it? Three technologies are vying for the honor: Iomega's (801/778-1000, www.iomega.com) Zip, Imation's (888/466-3456, www.imation.com) LS-120, and Sony's (800/222-7669, www.sony.com) HiFD. All three drives sell (or are expected to sell) in the \$100-to-\$250 range. Their accompanying disks can be had for (or are expected to be available for) about 10 cents per megabyte. Each has unique advantages and disadvantages.

Get Zipped To hear Iomega tell it, the contest is already over, and Zip has won. With 13 million Zip drives sold, and every major PC vendor (including Apple) offering an internal Zip drive as an option, Iomega has a credible case. Zip can also lay claim to



SuperDisk is one of three technologies vying to replace the floppy.

being the accepted medium of exchange at service bureaus. An informal poll of a half dozen prepress houses in the San Francisco area yielded consistent responses: 80 to 90 percent of all jobs come in on Zip cartridges, regardless of whether the customers are Mac or PC users.

Zip's major drawback: it's not backward-compatible with existing floppy disks, so

you're likely to need both a Zip and a floppy drive to handle all your removable-storage needs. And no matter how inexpensive Zips become, two drives cost more than one.

SuperDisk Designed jointly by Imation, Compaq, Panasonic, and O.R. Technology, LS-120 drives (also known as SuperDisk drives) have a major advantage over Zips: they can read and write to standard floppy disks as well as SuperDisk diskettes.

However, this advantage has yet to be turned into a solid win for the LS-120. The drives—slower and more expensive than Zip drives—are offered as an option by only a handful of PC vendors. No U.S. vendor has yet taken the leap of offering SuperDisk as standard desktop equipment in place of a floppy-disk drive. For Macintosh users, the picture is even weaker. Only one company, Winstation Systems (509/765-7759, www.winstation.com), offers a Mac-compatible SCSI version of the drive. However, Imation and Panasonic are working on a Universal Serial Bus version of the SuperDisk drive that should be available when the iMac ships in August.

Sony's Dark Horse The dark horse in this race is HiFD. Designed by Sony, with help from Fujifilm on the media, HiFD drives will support existing 1.44MB floppies and 200MB HiFD disks. Sony claims the new drive will offer a sustained transfer rate of 3.6MB per second, more than seven times the speed of an LS-120.

Originally slated to appear this spring, HiFD now is not expected to be available until the end of 1998. However, the first crop of HiFD drives will be available only with a parallel-port or ATAPI interface for PCs. Sony won't

say when a SCSI model will come to market.

Which drive will win out? Zip has a commanding lead, but its lack of backward compatibility could undermine its advantage. In the Mac market, removable-storage standards are often set by local service bureaus, but ultimately PC vendors will be the ones who determine the new storage standard for the industry. With HiFD not yet available, and with some serious price-jockeying certain to occur once it is, this is one race whose outcome is simply too early to call.

industry

Developers Are Bullish on Apple

OS X, G3, iMAC GIVE VENDORS NEW HOPE

by Cathy Abes

After some lean times, developers are finally voicing optimism about the Mac platform. Pointing to such promising trends as the G3 processor, the consumer iMac, and Mac OS X, many see the Mac figuring prominently in their future product strategies.

Bryan Lamkin, vice president of Adobe Systems' graphics products division, says that Apple is "doing the right things to serve the needs of professional publishing and digital-content creators," Adobe's prime market. He applauds Apple's new OS strategy, which makes it easier for developers to migrate to the next-generation Mac OS X.

Also bullish on Apple is MetaCreations' Frank Casano-

va, vice president of product management and design. A nine-year Apple veteran, Casanova thinks the company is more focused now than it ever was during his tenure and is "doing better than it has in the last five years."

Developer Focus Many vendors sense Apple's renewed interest in developers' concerns. Norm Meyrowitz, president of Macromedia Products, previously saw Apple as focused inward, competing with itself, whereas now the focus is where it should be—on developers and customers. Macromedia president and CEO Rob Burgess recalls that when Apple CEO Steve Jobs recently visited Macromedia headquarters to meet with executives, the staff gave him a standing ovation. Jobs joked that perhaps it had been a while since they'd last seen an Apple executive.

iMac Spurs Product Plans Roger Kasten, Newer Technology's chief technical officer, is enthusiastic about Mac OS X as well as Mac OS 8.7, both due in 1999. The latter, he says, will include most of the functionality of Mac OS X, but unlike Mac OS X, it will run on older Macs.

Kasten also believes the iMac will make Apple "the driving force in the USB market." Newer plans to offer a Universal Serial Bus converter supporting serial-port printers and modems, a USB floppy drive with two serial ports, and a USB hub with seven powered ports.

Heartened by Apple's revitalized consumer strategy, Terry Kunysz, president of Casady & Greene, says his company is "getting back in the game market" and is planning to launch several new products early next year. He says he is looking at other potential products the company "wouldn't have even considered six months ago."

graphics

Graphics Products Refocused

VENDORS SHIFT TOWARD WEB-SAVVY SOFTWARE

by Cathy Abes

As they gaze upon an increasingly competitive landscape, Adobe Systems (408/536-6000, www.adobe.com), Macromedia (415/252-2000, www.macromedia.com), and MetaCreations (805/566-6200, www.metacreations.com)—the three largest vendors of graphics software for the Mac—are redefining their product lines to match the needs of a changing, and more demanding, audience.

A Stronger Lineup For MetaCreations, this means

consolidating a wide range of products that originated in various pre-merger companies. Frank Casanova, vice president of product management and design, says the company will focus on fewer but bigger products rather than a slew of smaller ones. However, the company plans to develop new product lines even as major brands, such as the Painter family, continue to evolve. Casanova says that MetaCreations is also repurposing some products, such as KPT Show, which is evolving from a slide-show program for consumers into a business presentation tool.

Also moving ahead is the company's 3-D line. Poser 3, the latest version of the company's 3-D figure-animation tool, provides a customizable interface with improved light, camera, and movement controls. The \$199 package also lets you import motion-capture data, and it offers real-time 3-D previews.

"Web-Centric" Strategy Macromedia's strategy, ac-

cording to president and CEO Rob Burgess, is to transform itself into a "Web-centric" company whose business will become about 80 percent Web-related within the next few years.

Director 6.5, a recent update to the company's multi-media-authoring program, adds new Web-related features, such as the ability to export Java applets and to prepare movies for Java playback (see *Reviews*, in this issue). The update also includes Aftershock 2 (to prepare Director files for playback via browsers) and supports Macromedia Flash. Burgess estimates that about 30 percent of Director users are producing Web content, a number he expects to grow rapidly.

Macromedia is also shipping Flash 3, a new version of its Web animation tool that adds vector and bitmap transparency, sprite animation, and shape morphing. This summer, the Flash player will be built into Netscape Navigator, so Web surfers won't have

More Cameras for Your Mac

A MONTH PASSING BY WITHOUT A DIGITAL-camera announcement—that would certainly be news! Instead, Sony (800/222-7669, www.sony.com), Kodak (800/235-6325, www.kodak.com), Toshiba (800/550-8674, www.toshiba.com), and Agfa (508/658-5600, www.agfa.com) have all joined the ranks of vendors with new cameras.



Sony's \$599 MVC-FD51 and \$799 MVC-FD71 (pictured) both store images on a floppy disk. Thanks to extra memory in the cameras, you can even use the internal drive to make disk copies. Both cameras offer 640-by-480 resolution; the MVC-FD71 also features a 10x optical zoom. Kodak's latest, the DC220 and DC260, feature Universal Serial Bus interfaces for easy connection to the iMac. The \$1,100 DC220 features a 2x optical zoom and 1,152-by-864-pixel resolution; the \$1,300 DC260 offers a 3x zoom and 1,536-by-1,024 resolution. Agfa's \$900 ePhoto 1680 features a 3x optical zoom and 1,280-by-960-pixel resolution. Toshiba's \$700 PDR-M1 offers 1,280-by-1,024-pixel resolution and a 2x optical zoom.

Meanwhile, Olympus (516/844-5000, www.olympus.com) has dropped the price of its popular D600L camera from \$1,300 to \$1,000.—MACWORLD STAFF

**"How I fit several Baby Grands,
an enormous mass of aural chop suey,
and the entire London Zoo into a
4 INCH SQUARE."**

Mark Tinley, Sound Designer, Duran Duran



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Mark Tinley has heard it all. And recorded it. As the sound designer for Duran Duran, he's constantly searching for, creating, and recording interesting, often bizarre sounds for the band. From shrieking peacocks to a mishmash of electronic ambient noise, Mark safely stores it all on new 2GB Jaz disks. His incredibly portable Jaz drive gives him the ability to transport, edit, mix, and share even the largest sound files from wherever he may be. Because when you deal with sounds as big as all outdoors, you need space, big space. And that's exactly what he gets with his Jaz 2GB, *The Super-Fast, Extremely Vast Professional Storage Drive.* Get your Jaz 2GB drive through your local reseller and visit our Web site at: www.iomega.com

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to download a plug-in to view Flash graphics. Flash Generator, a server-based tool that generates multimedia objects on the fly, allowing constant updating of Web images, will ship this fall. Macromedia also has high hopes for FireWorks, its new software for producing Web graphics.

As Macromedia turns its attention to the Web, the company is phasing out weaker products, such as xRes and Extreme 3D, and has sold the digital-video technology in its never-released Final Cut software to Apple. Macromedia has also discontinued FreeHand Studio and is now selling FreeHand 8 separately.

Adobe Stays Focused
Meanwhile, Adobe continues to strengthen its software arsenal with new versions of Photoshop and Premiere; the latter received a complete overhaul to make it competitive with professional-level systems. Recognizing the growing dominance of the Web, Adobe has also introduced ImageReady, a competitor to Macromedia's FireWorks, and is promoting its PGML format as a Web standard for vector graphics (see "XML Drives Web Graphics Proposal," *News*, July 1998).

printing

A Flurry of Laser Printers

MONOCHROME AND COLOR MODELS BOOST QUALITY AND SPEED

by Macworld Staff

There may be a dearth of ink-jet printers for the Mac right now (see "Apple Shifts Imaging Strategy," *News*, August 1998), but laser printers are a different story. In recent months, a host of vendors have unveiled monochrome or color laser printers that work with your Mac—although you may need extra hardware to make the connection.

In Black and White NEC's (408/433-1200, www.nec.com) monochrome SuperScript 870 (pictured), the successor to the popular SuperScript 860, features 600-dpi resolution, 8-pages-per-minute print speed, and an improved paper-handling mechanism, all for \$349. However, Mac users will need to add a \$249

Ethernet kit. The printer uses Adobe's PrintGear technology but can be upgraded to support Adobe PostScript 3.

If you need the extra speed of a network printer, the \$1,400, 600-dpi FS-3700+ from Kyocera (800/232-6797, www.kyocera.com) blazes along at 18 ppm. Equipped with a PostScript Level 2 interpreter, it uses Kyocera's Ecosys technology to reduce reliance on consumables; the company claims a consumables cost of less than a half-cent per page.

Living Color For users with more colorful printing needs, the new 600-dpi Color Page-Works EX from Minolta (201/512-5800, www.minolta.com) features 3-ppm print speed (12 ppm in color) and supports PostScript 3. The printer sells for roughly \$4,000; Mac users will also need to purchase an Ethernet option.

Tally (425/251-5524, www.tally.com) has unveiled two network color laser printers, the \$3,695 T8104 and \$5,299 SpectraStar CL 4/16. The T8104, aimed at general business applications, features 600-dpi resolution and prints

8 color pages per minute. The CL 4/16, aimed at graphics professionals, offers 2,400-by-600-dpi resolution, manual duplexing, and support for booklet printing and electronic collation. It ships with 80MB of RAM versus 24MB for the T8104. Both printers support PostScript Level 2.



NEC's SuperScript 870 laser printer offers 600-dpi resolution.

ARNOLD TOSSEJO

If speed is a priority, consider the \$6,000 Optra Color 1200 from Lexmark (606/232-2000, www.lexmark.com), which uses a new printing mechanism to produce 12 color pages per minute. The 600-dpi printer handles media up to 11.7 by 17.0 inches and supports PostScript Level 2. Lexmark's \$3,000 Optra SC 1275, also new, offers 600-dpi resolution and 3-ppm color output. Both printers require an additional \$99 network adapter to work with the Mac.

CompUSA to Get Computer City Outlets

MAC USERS COULD EVENTUALLY HAVE new places to buy hardware and software thanks to CompUSA's recent announcement that it will acquire Computer City, the 100-store retail chain currently owned by Tandy. CompUSA, presently the only national computer dealer that sells Mac products, operates Apple stores within each of its 160 outlets.

Safe Assumption? Although the company has not announced specific plans for converting the Computer City locations, "the assumption would be" that most will become CompUSA outlets

with their own Apple stores, says Carol Elfstrom, CompUSA's director of corporate communications.

CompUSA disclosed the \$275 million acquisition June 22 and said it expected the deal to be completed within 90 days.

Apple and CompUSA announced the Apple "stores within stores" in November 1997. Three months later, Apple anointed CompUSA its primary national retailer and said it would phase out sales in other major chains, including Computer City.

Dealer Crackdown The CompUSA deal comes at a time when Apple is

getting tough with its other dealers.

In May, Apple canceled contracts with nearly one-third of its U.S. dealer network, citing those "who do not offer value-added solutions and who are not advocates of Apple products." The company has also launched a crackdown on gray marketers—Unauthorized Mac resellers who often sell the machines at discount. Apple has identified 24 suspected gray marketers and has threatened to cancel the contracts of any authorized dealers who sell Macs to the targeted outlets.—MACWORLD STAFF

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Three Additional Years Add \$275

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ELITE XL 608 LC

600 x 600 dpi resolution
8 pages per minute
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8 MB RAM expandable to 64 MB
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Two Additional Years Add \$239
Three Additional Years Add \$339

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GCC Elite 1212

GCC Elite 20/800



GCC Elite XL 608 LC

A logo's contribution to the printing process is modest. It just sits there and congratulates itself. The question is, how much are you willing to pay for this service?

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GCC printers turn out vivid halftones, poster-sized graphics, printshop-quality text, and perform various other noteworthy feats noted below.

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(Includes 500 sheet Universal Tray) Add \$419
Extra 8 MB Memory Add \$49

Platinum Exchange Warranty Program:

Additional Year	Add \$259
Two Additional Years	Add \$388
Three Additional Years	Add \$551

\$2599

Business Lease \$91 Month/36 month lease

ELITE XL 20/600

600 x 600 dpi resolution
20 pages per minute
1 year Platinum Exchange Warranty
Maximum Print Area 12.75" x 35.25"
Ledger, letter, legal, A3, A4, envelope
500 sheet Universal Tray
PostScript® Level 2 compatible, PCL 5
285 PostScript fonts, 15 PCL fonts
16 MB RAM expandable to 64 MB
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Platinum Exchange Warranty Program:

Additional Year	Add \$179
Two Additional Years	Add \$269
Three Additional Years	Add \$381

\$1799

Business Lease \$63 Month/36 month lease

ELITE XL 20/800

800 x 800 dpi resolution
20 pages per minute
1 year Platinum Exchange Warranty
Maximum Print Area 12.75" x 35.25"
Ledger, letter, legal, A3, A4, envelope
500 sheet Universal Tray
PostScript® Level 2 compatible, PCL 5
285 PostScript fonts, 15 PCL fonts
24 MB RAM expandable to 64 MB
EtherTalk, TCP/IP
Ethernet® (10 BaseT, AAUI), Netware®
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2nd or 3rd Paper Feeder* Add \$299
(Includes 500 sheet Universal Tray)
Extra 8 MB Memory Add \$49

Platinum Exchange Warranty Program:

Additional Year	Add \$199
Two Additional Years	Add \$299
Three Additional Years	Add \$424

\$1999

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Back-to-School Guide

Freddi Fish 3

FURTHER ADVENTURES WITH A FAVORITE FISH

Freddi Fish is back and ready for more underwater adventure in Freddi Fish 3: The Case of the Stolen Conch Shell (3½; \$29.99 list price), the third installment of the popular series from Humongous Entertainment (425/486-9258, www.humongous.com). This time, Freddi and his little green friend, Norman, must locate a missing conch shell, which the towns-fish need to launch the Founders' Day Festival. Freddi's Uncle Brenny is the guardian of the shell and gets thrown in jail when it comes up missing. Your 3-to-8-year-old's job is to find the missing shell pieces and then rescue Uncle Brenny and start the festival. FF3 features the outstanding graphics and ease of use that have been the hallmarks of the series. Unfortunately, it also suffers from the same abbreviated playing time: you'll get little more than an hour of quality computer time with your youngster. Fortunately, some sections let your child spend as long as she likes recording music or drawing underwater creatures. Our four-year-old liked it, and she thinks your child will, too.—PHILIP AND LAUREN DYER



Jump Start Fifth Grade

HEAD-START PACKAGE AIMS TOO HIGH

It sounds great on paper: a series of educational programs that help kids through the transitions between grades while providing a welcome diversion from the dog days of summer. Unfortunately, Jump Start Fifth Grade (3½; \$19.99 direct price), from Knowledge Adventure (310/793-0600, www.adventure.com), is more likely to frustrate your soon-to-be fifth-grader than fill him with anticipation for the upcoming school year. Playing the part of a kid detective, you try to save your city from the evil Dr. X, a villain set on blowing up all the factories and power plants. Clues hide all over the place, but they require solving math, science, history, geography, and language puzzles. Alas,



many of these puzzles are simply too difficult for the intended age group, using inappropriately advanced vocabulary and concepts. The program's poor interface requires kids to remember unfamiliar words they discover in one area to fill in a puzzle that is two or three screens away. My son and some of his friends were unable to get through the program without constant adult help. The mediocre animation and soundtrack aren't likely to keep a kid's interest. In fact, Jump Start Adventures elicited a show-stopping assessment: "Boring."—TOM NEGRINO AND SEAN SMITH

Kid Pix Studio Deluxe

ARTISTIC FUN FOR KIDS . . . AND PARENTS

This year's model of the long-running Kid Pix series, from Brøderbund Software (415/382-4400, www.broderbund.com), won't disappoint your budding artist. Kid Pix Studio Deluxe (3½; \$29.99 company's estimated price) provides megabytes of clip media that make it easy and fun for kids 3 to 12 years old to start creating art. New features include a text-



Kid Pix Studio Deluxe

to-speech capability that reads back text in English or Spanish; editable text in your artwork; and the ability to import and export your pictures in a variety of graphic formats. In addition to the main Kid Pix module, Moopies and the Stampinator animate clip art, stamps, and original drawing. Wacky TV adds special effects to video clips; Digital Puppets offer keyboard-controlled animated characters. A Slide Show feature lets your pint-size Picassos play back their dazzling creations with sound, transitions, and other special effects. And Kid Pix Studio Deluxe's appeal isn't limited to the young; Dad was politely requested more than once to go play on his own computer.—TOM NEGRINO AND SEAN SMITH

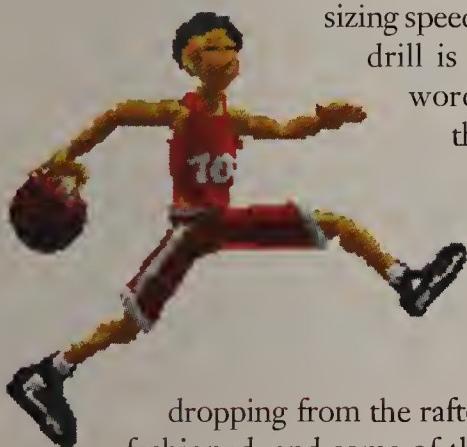
TIME TO SHOP FOR BINDER PAPER, CRAYONS, AND THE NEWEST EDUCATIONAL SOFTWARE

Slam Dunk Typing

TYPING TUTOR SHOOTS AND SCORES

Voice-recognition software may make typing obsolete by the time your ten-year-old is ready to enter the workforce, but you never know. With that in mind, Slam Dunk Typing (3½; \$24.95 list price), from Creative Wonders (617/761-3000, www.creativewonders.com), spices up a dry topic by combining the educational value of a typing tutor with the fast-moving action of a basketball game. Using an entertaining yet instructional arcade-style interface, Slam Dunk features seven different drills and ten skill levels designed to

teach keyboarding techniques, emphasizing speed and accuracy. The Horse drill is especially fun: you type words to bounce the ball off the cheerleaders, the sports reporter, the hot dog vendor, and other arena fixtures before it goes into the hoop. In Heads Up, you type words to destroy balls

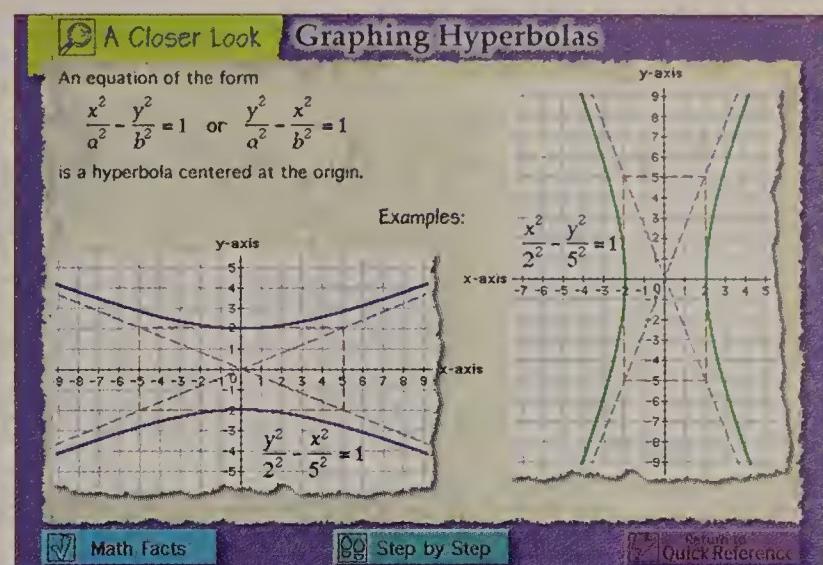


dropping from the rafters. The graphics are old-fashioned, and some of the drills are too slow and tedious to be engaging, but overall Slam Dunk is a winner. And who knows, for your kids, showing off their typing skills may be a cool party trick in the next century.—MICHAEL GOWAN

Success Builder: Math Library

FUN WITH NUMBERS

Grown-ups may not believe it, but a lot of kids think math is fun. Success Builder: Math Library (3½; \$39.95 company's estimated price), from The Learning Company (617/494-5700, www.learning-co.com), includes six CDs (Math Review, Algebra 1, Geometry, Algebra 2, Trigonometry, and Calculus), giving you lots of math. The box says it's good for people 14 and up, but even some 10-year-olds will have fun with the Math Review CD. Each CD has 5 to 12 different chapters, each with up to 7 different topics. There's nothing too fancy, just a short description of each topic and then some problems with links to examples. Some examples aren't explained very well, and the program doesn't offer a pop-up calculator or a way to work out problems without having to use a pencil and paper. Overall, though, using Success Builder: Math Library is a great way for kids as well as adults to learn or relearn math, study for tests, or just play around.—RIK AND CAREY MYSLEWSKI


A Closer Look Graphing Hyperbolas
An equation of the form
$$\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$$
 or
$$\frac{y^2}{a^2} - \frac{x^2}{b^2} = 1$$

is a hyperbola centered at the origin.
Examples:
$$\frac{x^2}{2^2} - \frac{y^2}{5^2} = 1$$

$$\frac{y^2}{2^2} - \frac{x^2}{5^2} = 1$$

Math Facts **Step by Step** **Quick Reference**

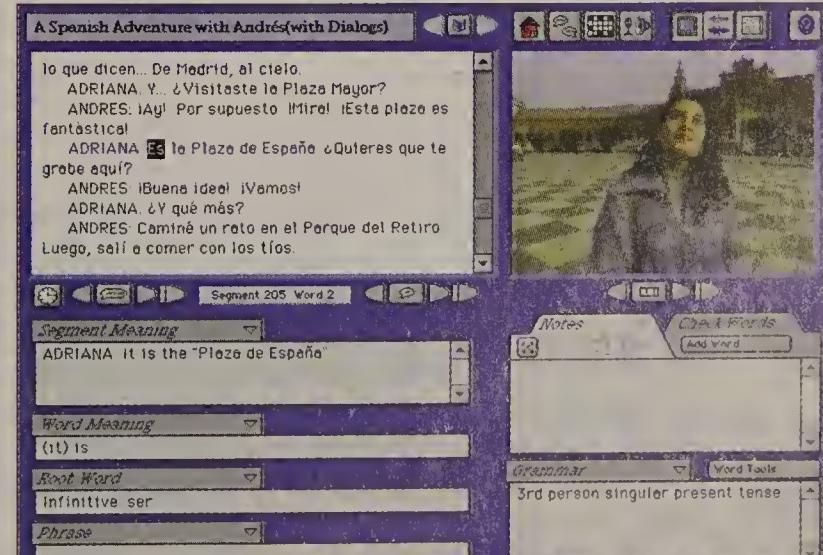
Success Builder: Math Library

LanguageNow

FLEXIBLE POLYGLOT TUTOR

The LanguageNow series (3½; \$49.95 list price), from Transparent Language (603/465-2230, www.transparent.com), is a superior language-learning package. Not only does the series offer a long list of languages—Dutch, French, German, Italian, Latin, Portuguese, Russian, Spanish, and Swedish—but the program lets you learn at your own pace and style. LanguageNow completely immerses you in your target language, letting you read stories, vocabulary, and conversation while a movie or slide show plays alongside scrolling text. If total immersion proves frustrating, same-page English translations and grammar lessons can help out. Once you've studied, you can test your comprehension with four games, including a crossword puzzle and a fill-in-the-blanks test. Alas, many lessons don't offer sufficient visual information, some of the pictures don't match up,

continues


A Spanish Adventure with Andrés (with Dialogs)
Io que dicen... De Madrid, al cielo.
ADRIANA: Y... ¿Visitaste la Plaza Mayor?
ANDRÉS: ¡Ay! Por supuesto! ¡Mire! ¡Esta plaza es fantástica!
ADRIANA: Es la Plaza de España. ¿Quieres que te grabe aquí?
ANDRÉS: ¡Buena idea! ¡Vamos!
ADRIANA: ¿Y qué más?
ANDRÉS: Caminé un rato en el Parque del Retiro. Luego, salí a comer con los tíos.
Segment 205 Word 2
Segment Meaning
ADRIANA: It is the "Plaza de España".
Word Meaning
(it) is
Root Word
Infinitive ser
Phrase
Notes
Cognates
3rd person singular present tense
Grammar
Word Tools

LanguageNow

Back-to-School Guide, continued

and a so-so interface hides some excellent content. But overall, LanguageNow offers a highly customizable, effective way to learn new language skills.—NANCY PETERSON

Where in Time Is Carmen Sandiego?

HISTORY GAME LACKS DETAILS

That intrepid thief Carmen Sandiego swaps her normal focus, geography, for matters more temporal, in a new attempt to make history lessons fun. *Where in Time Is Carmen Sandiego?* (3½; \$34.95 list price), from Brøderbund Software (415/382-4400, www.broderbund.com), features Carmen and her band of

thieves traveling through time, stealing precious artifacts. You track them down, solving puzzles and interacting with famous figures from different time periods along the way. The game covers a wide array of topics, from ancient Egypt to modern Asia, the American colonies up to the space race. Jewels of information pop up along the way—did you know that the first novel was written in Japan? The Chronopedia summarizes each historical period and provides the best opportunity for true learning.

But the game only skims the surface of most cultures, concentrating on a few select narrow aspects.

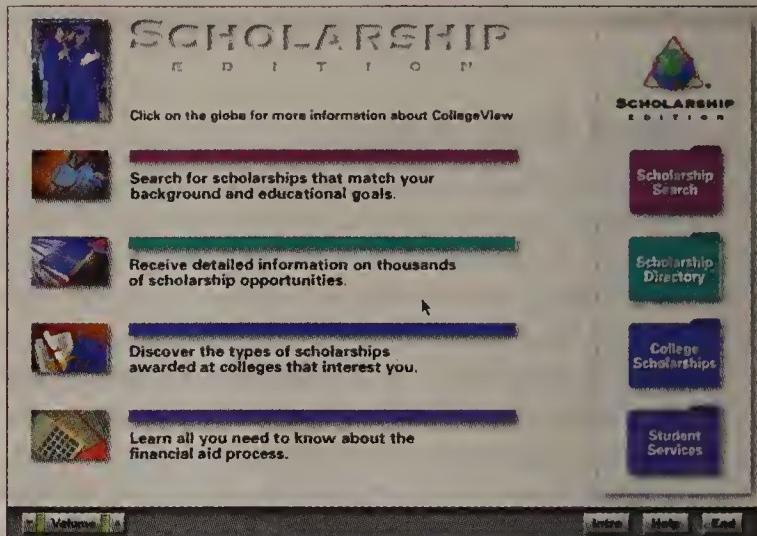
This approach may entice the younger members of the recommended audience (ages 9 and up), but it offers little stimulation for anyone who has more than a basic knowledge of world history.—MICHAEL GOWAN



Ultimate College Money Guide

SCHOLARSHIP-SEARCH TOOL FALLS SHORT

The Ultimate College Money Guide (3½; \$34.95 list price), from CollegeView (800/927-8439, www.collegeview.com), bills itself as an essential tool for people looking to finance their higher education. Unfortunately, poor implementation and a lack of insightful information limit its usefulness. The guide provides a database of more than 3,000 private, public, and school-specific scholarships. You can find ones for which you qualify by using search criteria ranging from state of residence to interests and hobbies. Once a match has been found, the program offers a scholarship summary and lets you draft a pre-formatted letter to request more information. Sample queries, however, had me questioning the effi-



Ultimate College Money Guide

ciency and accuracy of the search engine; the program lacks specific advice about individual scholarships, such as tips on applying. Although scholarships are created and discontinued regularly, the guide doesn't include the ability to dynamically update the database to keep the information current. The non-Mac-standard interface can be confusing for even an experienced user, although help files can walk you through most of the features. Despite its lofty ambitions, this program is useful only to students who are looking for a starting point in their search for financial assistance.—ALAN CHAN

Zap

SCIENTIFIC ADVENTURES IN FUN

Zap (3½; \$29.95 company's estimated price), from Edmark (425/556-8400, www.edmark.com), features three characters—Riff, Surge, and Blaze—who teach kids ages 8 to 12 about sound, light, and electricity. In Riff's SoundWave Studio, you learn how sound works, but you won't stay there long because Riff is a bit obnoxious. In the ElectroLoft, Surge helps you fix circuits and work with batteries, wires, lightbulbs, switches, and other electrical components. In the Laser Lab—the most fun module—Blaze shows you how to use lenses, mirrors, and filters to bounce laser light around. Each section offers two ways of playing: click on Explore to construct your own experiments or on Questions and Answers for puzzles that get tougher as you go along. It can be hard at first to understand how Zap works, but don't give up—you'll have lots of fun.—RIK AND ROXANNE MYSLEWSKI





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Macworld, June 1998



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Reviews

Adobe Premiere 5.0

LONG-AWAITED UPDATE

INVIGORATES DESKTOP-

VIDEO POWERHOUSE

FIRE UP THE SEARCHLIGHTS and call the paparazzi—there's a new Premiere in town. Years in the making, Adobe Premiere 5.0 is a major overhaul of the desktop-video world's most popular editor, a program that's been around since QuickTime movies were the size of a sticky note and rarely longer than a few minutes.

In recent years, Premiere's pioneer spirit worked against it. The program's editing and project-management features were cumbersome for lengthy projects and paled next to their counterparts in professional editing systems, such as Media 100. Worse, video professionals often suffered through sound-synchronization problems caused by an aging architecture that wasn't built for broadcast video.

Premiere 5 addresses these weaknesses and then some. Adobe has also added new video and audio filters, better title-making features, a wide array of interface improvements, and excellent cross-platform compatibility.

New Ways to Work

Premiere 5 looks different from earlier versions, and Premiere veterans will need some time to adapt. For example, Premiere 4's Construction window—where you positioned clips and added transitions and effects—has been replaced by the



JOHN RITTER

Timeline window, which works more like its counterpart in professional systems. You create simple cuts and add transitions within a single video track, whose subtracks hold individual clips and transitions.

The Timeline window sports several efficiency-boosting features. You can give descriptive names to tracks and collapse and hide tracks to reduce screen clutter. A new Navigator palette lets you quickly jump to different areas of the Timeline and change its magnification scale.

Terrific as the Timeline window is, video veterans will want to do most of

their work in the new Monitor window, which mimics the editing interface of high-end systems. It lets you set a clip's in and out points, insert a clip into your project, quickly apply a transition, preview a project, and scrub clips (play them forward or backward, using the mouse).

You can also perform three-point editing: you fit a clip into a project by specifying only three edit points, and Premiere calculates the fourth point itself. It's a feature common in high-end video systems but new to Premiere, and it makes for faster, more efficient editing.

REAL PRODUCTS
REAL RATINGS

Reviews you can trust: Macworld rates only final shipping products, not prototypes. What we review is what you can actually buy.

OUTSTANDING:

VERY GOOD:

GOOD:

FLAWED:

UNACCEPTABLE:

Enhanced Effects

Premiere 5 retains the plug-in architecture of previous versions and is compatible with third-party filters and effects. It also has new hooks for accelerating effects rendering, although no third-party products use them—yet.

Adobe also added several new video effects. The Horizontal Hold filter simulates a TV on the fritz, Camera View pans and rotates clips, Better Gaussian Blur gives you precise control over blurring, Strobe simulates a flashing strobe light, and Median simulates painterly effects.

Many of Premiere 5's filters let you animate their effects over time—to gradually blur a clip, for example. A new keyframe feature aids in animation, but it isn't as sophisticated as its counterparts in Adobe After Effects or Artel's Boris FX (see *Reviews*, March 1998). For example, because keyframes don't appear in the Timeline window, manipulating them means repeated trips to the Filters dialog box. Still, filter animation is greatly improved over that in Premiere 4.

Also new to Premiere 5 are many first-rate audio filters, including reverb, flanging, compression, digital delay, and both graphic and parametric equalization. Most of the new filters have buttons that let you preview settings. Most also support keyframes, so you can, for example, make an echo louder over time. Unfortunately, you can't save effects settings as presets for subsequent projects, as you can in the wonderful audio plug-ins from Waves (www.waves.com).

Speaking of sound, Premiere 5 offers improved control over audio levels and left/right stereo placement. And a new resampling routine yields better fidelity when you're creating low-bandwidth audio tracks for CD-ROMs or the Web.

Turning Pro

The Monitor window isn't the only aspect of Premiere 5 that will appeal to video pros; the most important enhancement is true support for NTSC-standard 29.97-frame-per-second video. Previous versions fudged the frame rate up to 30 fps, causing sound synchronization to drift over time. Premiere 5 can also handle longer projects—up to three hours, compared to previous versions' one-hour limit. A built-in database lets you give clips descriptive keywords and phrases that you can then search for; a convenient new Libraries feature lets you store and recall frequently used media.

Video pros will also appreciate Premiere 5's revamped titling features. You can now apply font, style, and color attributes on a character-by-character basis. You create rolling titles without all the workarounds required in previous versions and then preview them directly in the Title window. One small gripe: you can't select words in the Title window by double-clicking on them.

Web-video producers will find only modest improvements in Premiere 5. The new version incorporates the Web-oriented add-ons that Adobe released for



Timelines and Monitors Premiere 5's Timeline window (top) offers a time-based view of a project; note the triangles for collapsing and expanding tracks. The Monitor window (bottom) uses the source/target approach common in professional systems.

Premiere 4.2, such as the ability to output a project as an animated GIF file. Those features are now more tightly integrated into the program, but they don't go beyond their predecessors.

Interface Enhancements

Premiere was long overdue for an interface lift. The new version is more consistent with other Adobe products; the Navigator palette works like Photoshop's, for instance. But the new family ties go deeper than the interface—Premiere can now import individual layers from Photoshop documents.

The Transitions palette is also greatly improved. You can turn off the distracting animated transition icons and hide the transition descriptions to create a smaller, more efficient palette. You can also remove transitions from the palette and create customized palettes.

Other refinements include pop-up tool tips that appear whenever you point to a tool-bar button and terrific online help—a first for the Mac OS version of Premiere. With 32 levels of Undo, you can now experiment with abandon—and if necessary, abandon your experiments.

The best part of the new interface is that its power doesn't come at the expense of simplicity. New users can hide the more complicated Monitor window and simply work in the Timeline view, and they can ignore the more advanced concepts of media bins and libraries.

Better on Windows?

I tested both the Mac and Windows versions; Premiere 5 installs smoothly on both platforms. (The Macintosh version runs on PowerPC-based machines only.) In the Windows version, Adobe's installer automatically adds Apple's QuickTime 3 and Microsoft's latest DirectX software drivers if neither is present. Both versions include Photoshop LE 4.0.

Premiere 5 looks and works nearly identically on both platforms, although the Mac version can feel sluggish; in particular, users have complained about slow performance with long-form projects.

You can swap project files and most types of settings files between the two versions.

Macworld's Buying Advice

Regardless of platform, Premiere 5 is a winner. Adobe has succeeded in bringing Premiere's editing features up to date without making the program too daunting for beginners. Premiere is the best general-purpose video editor available, and now it's a solid choice for professionals, too.—JIM HEID

RATING: **PROS:** Professional-level feature enhancements; excellent cross-platform compatibility. **CONS:** Keyframes don't appear in Timeline; can't save audio filter presets. **COMPANY:** Adobe Systems (408/536-6000, www.adobe.com). **LIST PRICE:** \$895; upgrade from any earlier version (including Premiere LE), \$199.

Web Servers

LATEST OFFERINGS PROVE VERSATILE AND FAST (ENOUGH)

EVERYONE ACKNOWLEDGES THE Mac's leading role in creating Web content. But as a platform for serving Web sites, the Mac gets a bum rap. According to surveys conducted by Netcraft, less than 2 percent of publicly accessible Web sites are served using Mac OS machines (see www.netcraft.com/Survey/). Unix dominates with more than 50 percent, and Windows NT places second at about 24 percent. The reasons behind this disparity range from corporate and ISP bias against the Mac to genuine technical concerns about the platform's performance—Mac OS Web servers tend to bring up the rear in benchmark tests.

But benchmark graphs don't tell the entire story. As a Web-server platform, the Mac has some real advantages over other platforms. It's more resistant to most forms of hacker attacks, and it's often easier to set up and administer.

For this roundup, Macworld Lab tested three Mac Web-server packages: Social Engineering's Quid Pro Quo Plus 2.1, a reasonably priced but sluggish offering; StarNine Technologies' WebStar 3.0, the latest version of the most popular Mac

Web server; and Tenon Intersystems' WebTen 2.0.4, a fast but sometimes funky Mac adaptation of Apache.

Set Up for Serving

All three programs are easy to get up and running. Quid Pro Quo Plus is particularly beginner-friendly; when you launch it for the first time, dialog boxes walk you through the specifying of various settings.

When it comes to administering the server, WebStar and Quid Pro Quo Plus have an edge over WebTen; both provide well-designed administration programs (see "Setting Up Servers"). With WebTen, you configure nearly every server setting with a Web browser. There's nothing wrong with browser-based administration, but WebTen's interface is crudely designed and often confusing.

Another aspect of setup deals with configuring the server to handle special data types. Servers preconfigured for QuickTime and Shockwave movies, Real-Media clips, and Flash animations get up faster, so it's surprising that Quid Pro Quo isn't set up for these and other common MIME types. Adding them isn't

brain surgery, but it is grunt work fraught with the potential for typos. WebTen offers the most complete MIME configuration list, with WebStar close behind.

Besides dishing out content with HTTP, each program has a unique mix of additional features. WebStar and WebTen also offer FTP services (which let visitors transfer files to and from your site without requiring you to run a separate FTP server), along with proxy servers that can act as intermediaries between a local network and the Internet. WebTen's proxy server handles HTTP and FTP; WebStar's is limited to HTTP—but that's not a significant drawback, since proxy servers are most commonly used for HTTP requests.

All three programs now support the HTTP 1.1 specification's *keep-alive* option. This enables the server to send several files to a browser in a single connection cycle, speeding the transfer of pages containing numerous graphics.

For electronic commerce and other security-sensitive tasks, both WebStar and WebTen support the Secure Sockets Layer (SSL). Quid Pro Quo Plus doesn't, but Social Engineering's \$350 Quid Pro Quo Secure does.

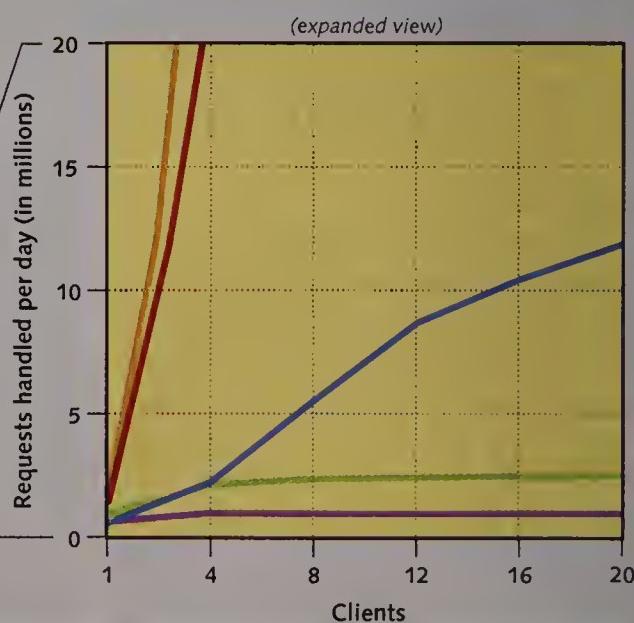
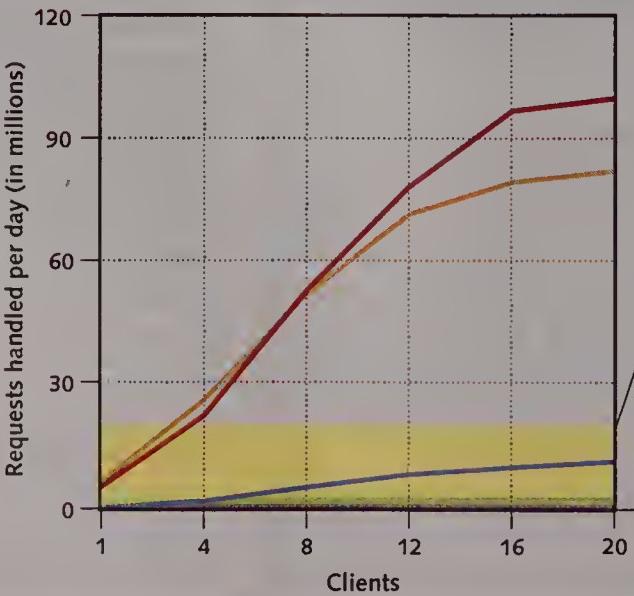
There's No Place Like Multihome

The new versions of WebStar and Quid Pro Quo Plus join WebTen in support-

Macworld
LAB TEST

Mac Web Servers: Slower than NT, but Fast Enough

— NT Server IIS 4 — WebTen 2.0.4 — WebStar 3.0 — Personal Web Sharing — Quid Pro Quo Plus 2.1



Behind Our Tests

For detailed information on our methodology, see www.macworld.com/tests/.—Macworld Lab testing supervised by Kevin Mitchell

ing *multihoming*—the ability to use one server to host multiple domains. All three programs support IP-based virtual multihoming.

A key part of multihoming involves supplying each domain's address to a domain-name server (DNS). WebTen edges out WebStar and Quid Pro Quo Plus here, providing built-in DNS services that eliminate the need to run a separate DNS package or hassle your ISP to make the necessary tweaks to its DNS.

Quid Pro Quo Plus allows for more multihoming-configuration flexibility than does WebStar. With WebStar, the same server settings—security passwords, MIME setups, cache and connection settings—apply to every domain you host. Quid Pro Quo Plus, by comparison, per-

mits separate settings for each domain. And WebStar's SSL security features don't work with virtual hosts, whereas WebTen's do. Thus, WebTen is better suited to Webmasters who need to serve secure pages through multiple domains.

WebStar 3 includes a great new plug-in for adding search features to a site. The plug-in can index the contents of HTML files and Acrobat PDF documents. WebStar's SSI plug-in provides a <search> tag that makes it easy to add search capabilities to a page and display search results.

Thanks to its Unix heritage, WebTen is the extensibility champ. Besides supporting WebStar-format plug-ins, it also supports Apache modules and the Perl scripting language.

Manual Labor

Feature-laden servers can be complicated beasts, and you can't tame them without good documentation. WebStar 3's manual is thorough, well-written, and packed with examples and tips. It's also delivered in HTML form, with extensive hyperlinks for jumping from section to section.

Quid Pro Quo Plus's manual is a single Adobe Acrobat PDF file. It's thorough and well written but lacks Acrobat bookmarks for fast navigation. But Quid Pro Quo Plus itself provides good balloon help—the only program of the three to do so.

WebTen's manual is also thorough, but it's written in engineer-speak. Combine this

with WebTen's often-confusing browser-administration interface, and you have a steep learning curve.

Performance: WebTen's Revenge

Macworld Lab's testing showed exactly why so many Webmasters dismiss the Mac as a server platform (see "Mac Web Servers: Slower than NT, but Fast Enough"). WebStar and Quid Pro Quo Plus were dramatically slower than a Windows NT box running Microsoft's Internet Information Server (IIS). Quid Pro Quo Plus was especially slow, finishing behind even Apple's free Personal Web Sharing software.

We also found that Mac OS servers required extensive tweaking to optimize performance. Running Microsoft's IIS is a set-it-and-forget-it proposition, but the Mac servers require the juggling of cache settings and memory allocation to get the best performance.

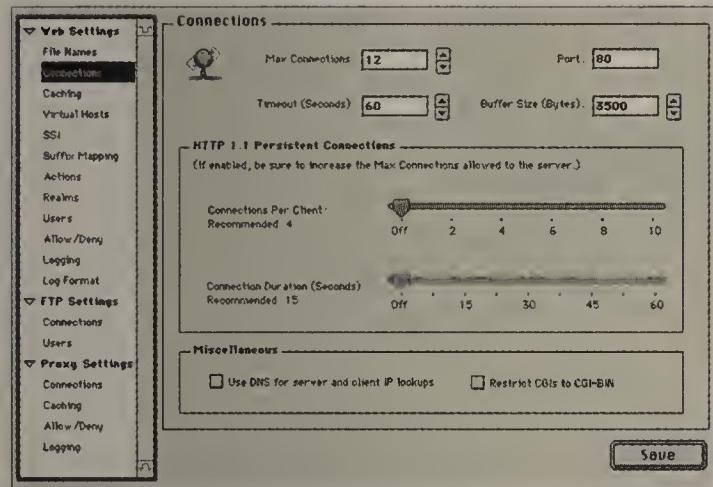
Two of the worst performance

inhibitors are the Mac OS's aging file system and the platform's crude multitasking architecture; this is where WebTen, with its Unix-based Mach kernel and Apache heritage, atones for its complexity. WebTen utterly humbled its Mac-based competitors and held its own against the NT server.

To put the performance numbers in perspective, though, remember that any of these Mac servers can meet the requirements of all but the busiest Web sites. Even Quid Pro Quo Plus can handle tens of thousands of hits per day. In fact, you'll probably saturate your network connection before you tax your server software.

Macworld's Buying Advice

The latest Mac Web servers have gone beyond spewing out HTTP to become complete, well-rounded serving systems. Though reasonably priced, Social Engineering's Quid Pro Quo Plus 2.1 lacks its competitors' range of features. Tenon's WebTen 2.0.4 proved to be an extremely powerful contender: if you're familiar with Unix but want the flexibility of using WebStar-format plug-ins and AppleScript—not to mention downright sizzling performance—WebTen is an excellent choice. But in the end, StarNine's WebStar 3.0 shines brightest. It isn't the fastest Mac Web server, but it's by far the most polished and should be any Mac Webmaster's first choice.—JIM HEID



Setting Up Servers Both WebStar (shown here) and Quid Pro Quo Plus provide remote-administration utilities that enable you to tweak the server from any Mac connected to the Internet.

mits separate settings for each domain. And WebStar's SSL security features don't work with virtual hosts, whereas WebTen's do. Thus, WebTen is better suited to Webmasters who need to serve secure pages through multiple domains.

Bells and Whistles

One key to the growing power of Mac Web servers is their support for plug-in modules that add new features. All three servers support the WebStar-format plug-in architecture and include plug-ins for handling server-side image maps, converting files into MacBinary and BinHex formats, creating page counters, and displaying Finder-like directory listings.

All three also support Server Side Includes (SSIs), which use specialized tags to display the current time and date, and much more. WebTen's SSI implementation uses the latest Apache Extended SSI (XSSI) standard, which is far more pow-

Quid Pro Quo Plus 2.1

RATING: **PROS:** Inexpensive; friendly interface. **CONS:** Slow; limited features; poor support. **COMPANY:** Social Engineering (510/204-0910, www.socialeng.com). **LIST PRICE:** \$129.

WebStar 3.0

RATING: **PROS:** Broad array of enhancements; superb documentation. **CONS:** Multihoming limitations. **COMPANY:** StarNine Technologies (510/649-4949, www.starnine.com). **LIST PRICE:** \$499; upgrade from version 2.X \$199.

WebTen 2.0.4

RATING: **PROS:** Excellent performance; extremely powerful; unmatched extensibility. **CONS:** Steep learning curve; complex administration. **COMPANY:** Tenon Intersystems (805/963-6983, www.tenon.com). **LIST PRICE:** \$495.

Flash 3.0

EXCELLENT WEB VECTOR-GRAFICS TOOL MATURES

STANDARDS CHANGE DAILY, but Macromedia's Flash is a rare breed—on its way to becoming a solid standard for Web animation.

Flash's highly efficient vector-graphics files are rasterized and animated as they arrive at a browser, which maximizes visual impact and keeps download times short. This efficiency is part of why Netscape announced in June that Flash technology will be automatically supported in future versions of its browsers.

Flash's 3.0 upgrade delivers new creative features, bug-fixes, interface revisions, and alternative playback methods for finished Flash projects—confirming Flash as a powerful Web graphics tool.

More Creation Capability

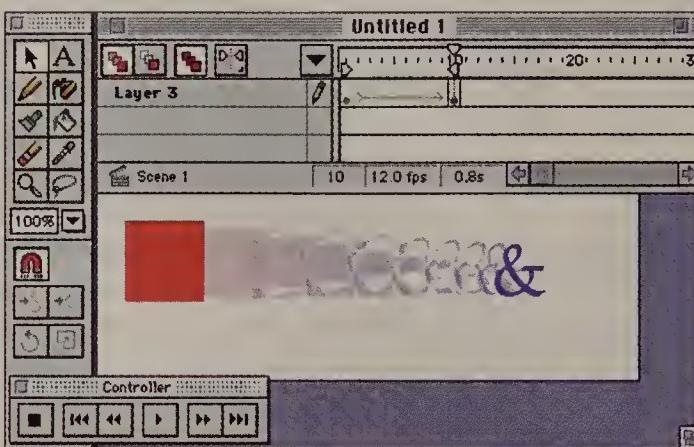
Flash 3.0's robust improvements begin with the addition of object transparency, an effect difficult to achieve easily in traditional PostScript-based illustration programs such as Adobe Illustrator and Macromedia FreeHand. You can vary the opacity of any shape, brushstroke, line, or fill with a transparency setting from 0 percent to 100 percent. And transparency can be animated over time—great for fading graphic objects onto or off the screen.

Even more powerful is Flash's new ability to use a layer's shapes as a mask for the layer immediately beneath the overlying layer. For example, an animated square in a top layer can determine the opacity of an image in the underlying layer. However, Flash supports only one level of transparency per layer with mask layers.

Flash's new shape-tweening feature blends one shape into another over time. The tweening, or morphing, isn't constrained by the number of control points in an object—a simple square can be morphed into a complex letterform. To each object you can add as many as 26 control points, called Shape Hints, to define a path between a point on the starting shape and the same point on the final shape. Shape Hints aren't sophisticated, but they're better than no tween guides at all. Shape tweening works only on shapes and text created in Flash, however. EPS files and vector drawings imported or pasted from other drawing applications

can't be morphed—a limitation for artists used to importing artwork from Illustrator or FreeHand into Flash.

You can assign actions and behaviors to Flash's "symbols"—buttons, graphics, sounds, and looping animations—as before, but now Flash allows each *instance*



Morphing Magic Animators will love Flash 3.0's shape-tweening capabilities (shown here with Onion Skinning turned on).

of a symbol to have different actions and behaviors. For example, create a looping animation, define it as a symbol, and put it in three different places in a Flash file. By using Flash 3.0's Modify>Instance command, you can give each symbol independent actions—link one to a URL and another to a Flash Scene, and have the third play an animation when clicked. This makes it simpler to use symbols for tasks such as creating interface elements.

Other new enhancements include the Object Inspector, which shows in a single dialog box the object types, sizes, positions, and actions attached to objects; a floating color/gradient palette; and support for the PNG (Portable Network Graphics) file format.

Expanded Playback Options

Like its larger multimedia cousin, Macromedia Director, Flash is now capable of creating stand-alone projector files. Previous versions of Flash required either the Flash Player or a browser armed with a Shockwave Flash plug-in to view Flash movies. Now that Flash movies are self-playing, Flash is a viable option for delivering compact desktop multimedia or interactive presentations.

Perhaps the most important addition to Flash is Macromedia's utility Aftershock 2.0. Aftershock automatically generates HTML code for Shockwave and Flash movies, but its most powerful feature is its ability to detect the required Shockwave Flash plug-in or ActiveX control in a browser and, if it is absent, designate alternative methods of displaying a Flash file. Aftershock can convert a Flash animation to JavaScript or a GIF file (static or animated) and even preserve embedded hyperlinks. The new

Bandwidth Profiler also helps you serve the Web audience by providing playback simulation for different Internet-connection speeds.

Flash 3.0 is not without its limitations, though. Its animation tools aren't exactly up to professional standards—for example, Flash's timeline is still missing velocity graphs—but their simplicity helps make up for reduced control. Another issue is that you can't import Adobe Illustrator 7.0 files into Flash 3.0, but you can

paste them in from the Clipboard. You can directly import files from FreeHand 8.0, however, complete with layering and color specifications.

Macworld's Buying Advice

Flash is a Web-animation cornerstone and has become an important technology for delivering compelling animated Web content. At its core is an ingenious technology surrounded by a host of stable playback environments, cross-platform support, and an ever improving set of tools. Flash 3.0 isn't perfect, but for Web-content creators, it's a capable, eminently useful tool for creating lean animation and multimedia.

—NATHAN MOODY AND DAVID BIEDNY

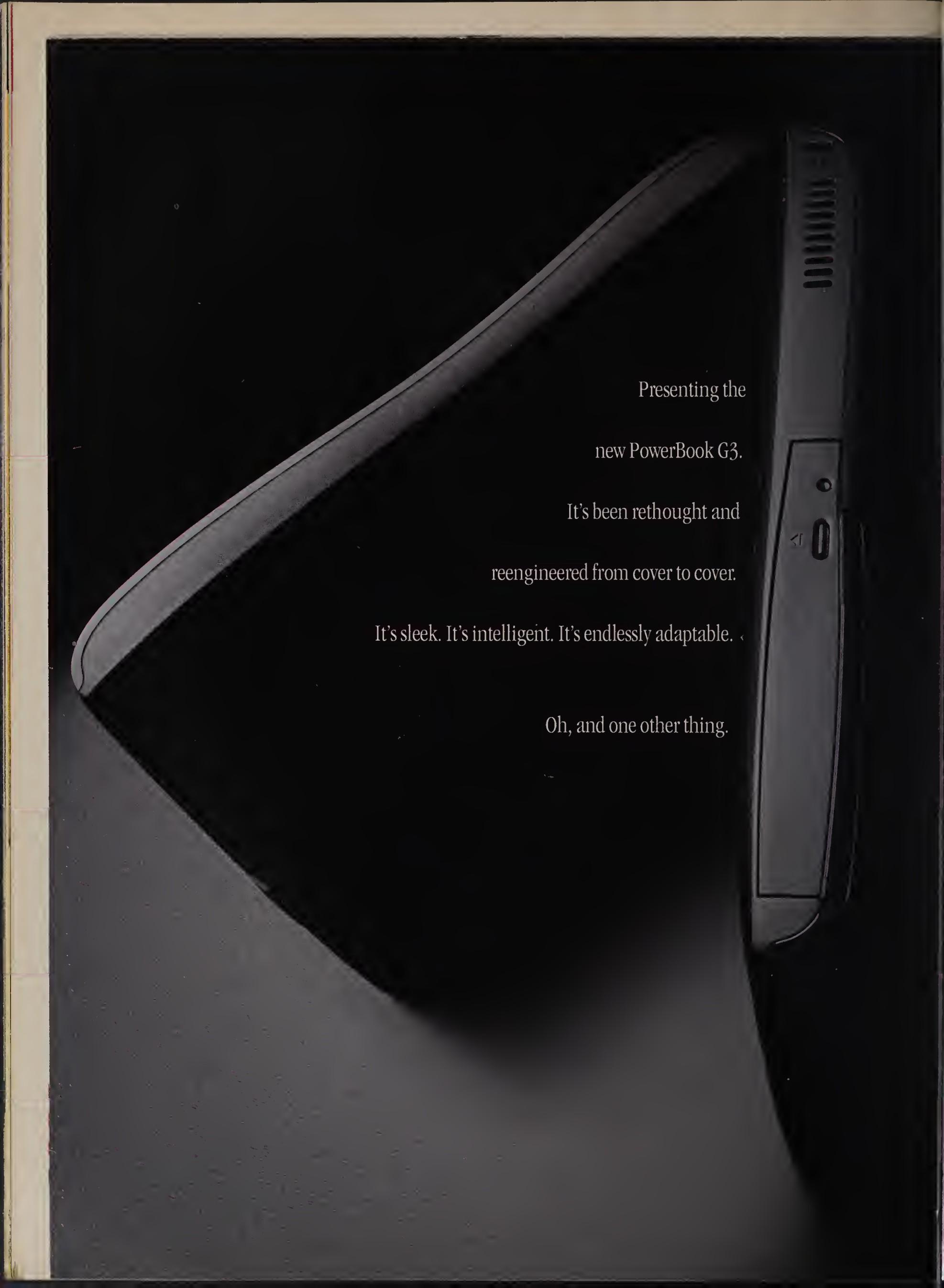
RATING: **PROS:** Object masking;

tweening and transparency effects; files can be played as stand-alone animations; Object Inspector facilitates object editing. **CONS:** Morphing doesn't work with imported graphics; can't directly import Illustrator 7 documents; needs more-finely tuned animation controls. **COMPANY:** Macromedia (415/252-2000, www.macromedia.com).

COMPANY'S ESTIMATED PRICE: \$299; upgrade from any previous version, \$99.



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BYTEmark Integer Index Scores

PowerBook G3/292	9.6
PowerBook G3/260	8.4
PowerBook G3/233	7.3

2.8 Apple Armada Pentium/266 MMX

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*Estimated retail price. *On 13.3" and 14.1" models.



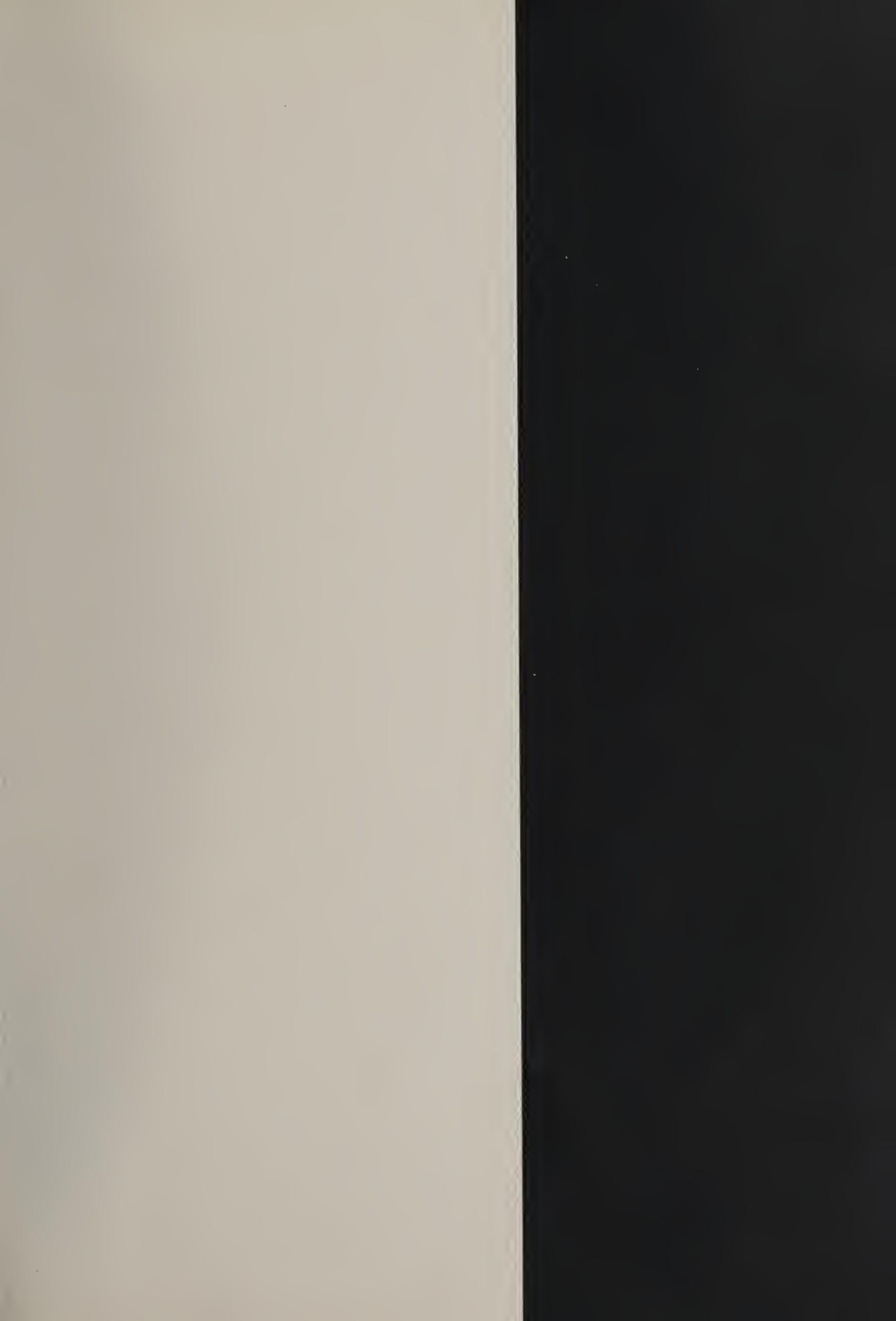
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CyberStudio 3, Dreamweaver 1.2

IN THE BATTLE OF THE WEB EDITORS, CYBERSTUDIO TRIUMPHS

GOOLIVE'S CYBERSTUDIO HAS been the pick of the WYSIWYG tools among Web editing pros since its original release last year.

The excellent CyberStudio 3.0 sets a new standard for Web design tools, raising the bar far above version 2, which has been rechristened CyberStudio Personal Edition (\$99). Macromedia has also updated its analogous offering; Dreamweaver 1.2 is a free, incremental upgrade that smooths some of the program's initially rough edges (see *Reviews*, April 1998).

Bossing Your Site Around

CyberStudio 2's site-management features were good (see *Reviews*, December 1997), but the revamped site manager in version 3 is phenomenal. For example, the new Site Window is completely integrated with the Finder; moving files around in the window changes their physical location on your hard disk. You can now create, move, rename, and link pages in the graphical site view, and all assets are easily accessible from the Site Window. You can even open multiple Site Windows to move assets between sites more easily. And the built-in FTP tool now uploads only files that have changed.

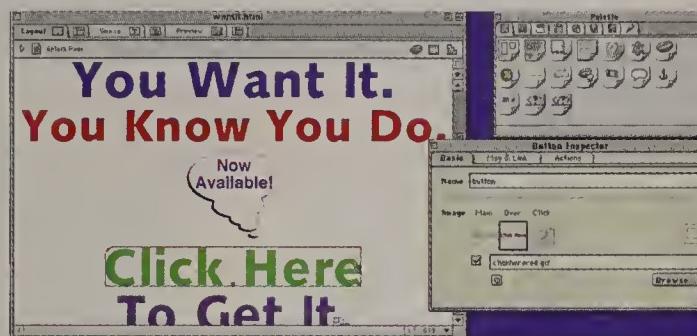
The most important improvement in Dreamweaver 1.2 is automatic link checking, the key component of site management. Macromedia has also speeded up Dreamweaver's FTP site uploading. CyberStudio has always offered automatic link checking, but version 3 checks links to all sites, local and otherwise.

Both CyberStudio and Dreamweaver help prevent nasty layout surprises by letting you preview your site in different browsers. CyberStudio now lets you set a target browser for your site and then adjusts its layout display, JavaScript behaviors, and HTML-syntax checking to match that browser's capabilities.

Dreamweaver has always been able to check sites for compatibility with different browser versions, but it no longer assumes that users will have a version 4.0 browser. The new version makes sites compatible with earlier browsers by replacing layers and style sheets with a single table that preserves, as closely as possible, the

original positioning of page elements.

With its layout grids, CyberStudio already offered precise positioning of page elements. The new version adds desktop publishing-style tools for such tasks as selecting, grouping, aligning, and distrib-



Rollovers Made Easy In CyberStudio 3, it's a snap to create JavaScript-powered button rollovers.

uting multiple elements. You can also create and reuse master elements, format multiple cells in a table at once, and import tab-separated ASCII files. Dreamweaver still does a fine job of table and frame formatting, but it lacks support for master-page elements and the ability to group and align multiple elements.

Getting Dynamic with HTML

In supporting Cascading Style Sheets and Dynamic HTML, CyberStudio 3 is playing catch-up with Dreamweaver. However, these cutting-edge technologies are significantly easier to understand and use in CyberStudio than in Dreamweaver. For example, CyberStudio uses a floating Inspector palette to set up styles, giving you immediate feedback as you modify style attributes. In contrast, Dreamweaver's clunky modal dialog box usually requires multiple passes to get a style the way you want it. This isn't an isolated occurrence; Dreamweaver's interface often seems awkward and inelegant.

Interface aside, the programs' support for style-sheet formatting is now roughly equivalent; CyberStudio 3 adds floating layer boxes and a Timeline window to handle style-sheet positioning.

Like Dreamweaver, CyberStudio 3 can automatically generate JavaScript-based animations. CyberStudio includes 18 predefined actions, and you can easily insert common JavaScript-based actions

into your page by dragging their icons from the tool palette.

Adding behaviors in Dreamweaver isn't any easier than before, but version 1.2 improves its rollover behavior by letting you preload images so users don't experience annoying delays.

Each of the programs offers improved HTML editing with better syntax coloring. CyberStudio also adds smarter, more convenient syntax checking and line numbers, and Dreamweaver now lets you choose a code editor other than the included BBEdit 4.5.

Macworld's Buying Advice

Dreamweaver users will be happy with the 1.2 upgrade; the improvements make it more suitable for larger sites and those targeted at older browsers. If you haven't already made the investment in Dreamweaver, however, this upgrade probably won't tempt you.

GoLive has successfully integrated difficult technologies such as Dynamic HTML into an already terrific program without compromising CyberStudio's ease of use. The new browser-previewing capabilities alone are worth the cost of the upgrade; the rest of the improvements make CyberStudio 3 the clear choice for Web professionals.—TOM NEGRINO

CyberStudio 3

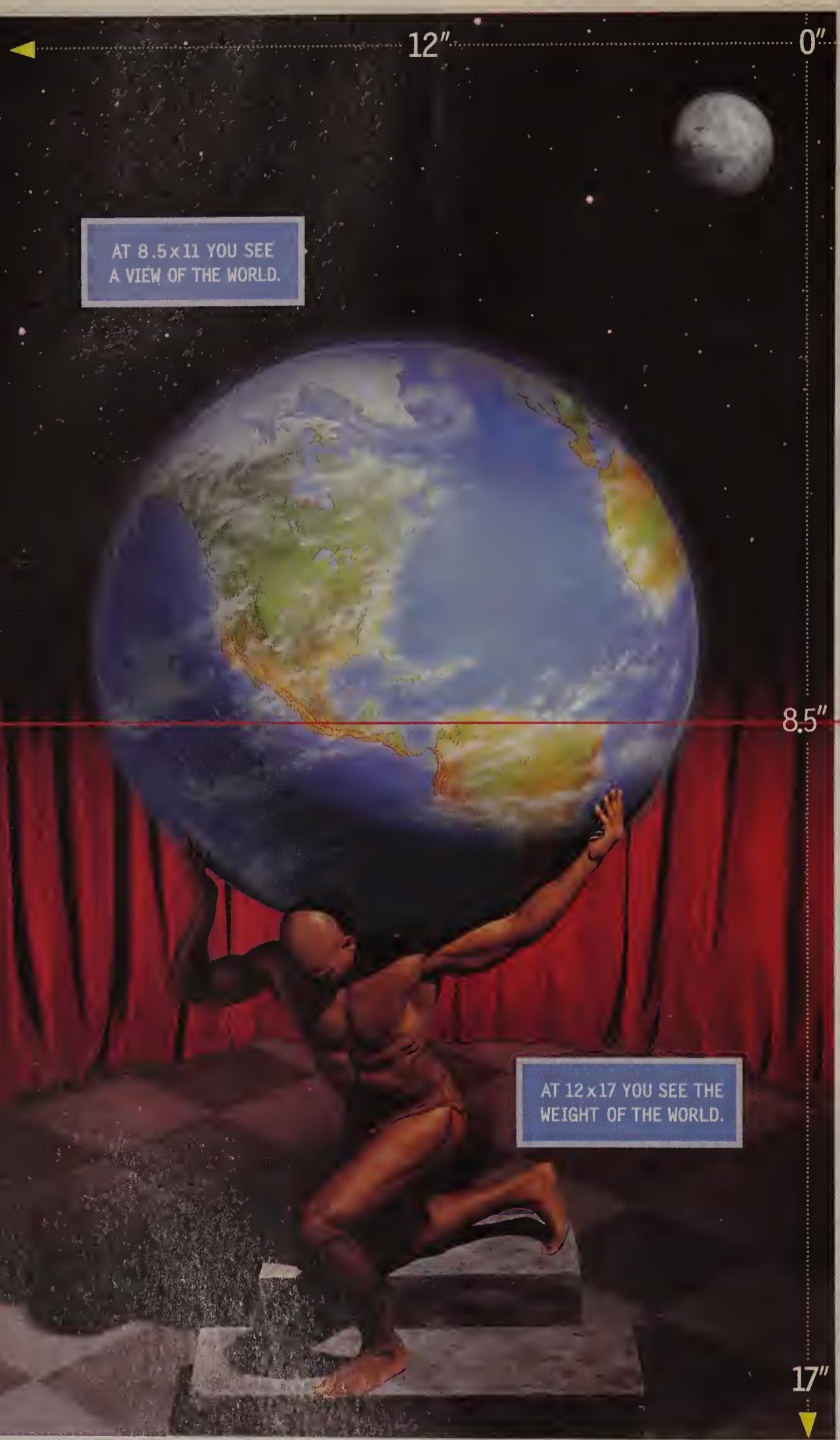
RATING: **PROS:** Terrific site management; excellent Dynamic HTML support; superior layout tools; improved HTML-source editing.

CONS: None significant. **COMPANY:** GoLive Systems (650/463-1580, www.golive.com). **LIST PRICE:** \$549; introductory price, \$299.

Dreamweaver 1.2

RATING: **PROS:** Improved site management and browser compatibility; good Dynamic HTML features; cross-platform. **CONS:** Unrefined interface. **COMPANY:** Macromedia (415/252-2000, www.macromedia.com). **LIST PRICE:** \$299.

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Director 6.5

MULTIMEDIA AUTHORIZING HEAVYWEIGHT GETS MODEST UPGRADE

SOME SOFTWARE UPDATES break new ground, and others just till the soil a bit. Macromedia Director 6.5 falls into the second category. The latest version of this multimedia authoring powerhouse isn't radically different from its predecessor, but instead incorporates a collection of new add-ons and feature tweaks. Director 6.5 is a solid update, but some of its new features have frustrating limitations.

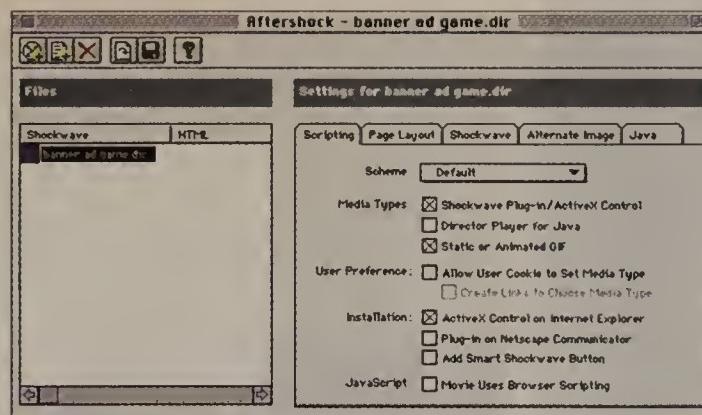
The latest version retains the identical timeline-authoring style of Director 6.0 (see *Reviews*, September 1997). But although this approach is ideal for creating animations, it has always been more cumbersome for slide-show-style projects. So to give business users a head start, Director 6.5 includes an Xtra (plug-in module) that converts Microsoft PowerPoint presentations into Director format. Each element in a PowerPoint project becomes a Director cast member, and each slide becomes a section in the Score. You can then use Director's arsenal to add sounds, animation, and scripts.

Unfortunately, the PowerPoint Xtra has significant limitations. For starters, it works only with PowerPoint 4 presentations—it can't import presentations created in PowerPoint 7 (included with Office 95 for Windows) or PowerPoint 98 (in Office 98 for the Mac). Nor can the Xtra import sounds, animations, or interactivity settings from PowerPoint. These shortcomings severely hobble your ability to use Director to polish a project's design and interactivity that you've fleshed out in PowerPoint.

Director 6.5 also introduces support for Apple's QuickTime 3. You can import any QuickTime 3-compatible media into Director projects, and Director's new QuickTime 3 behaviors library enables you to take advantage of QuickTime 3's ability to rotate and scale movies on the fly.

You can also now save projects as Java applets, enabling playback that doesn't require the Shockwave plug-in. The Java export feature doesn't support many advanced Director features, but it's still useful for creating applets containing animations, user-interface elements, and simple games.

Director 6.5 includes version 2.0 of



Shockingly Easy The Aftershock 2.0 utility simplifies the task of putting Director projects in Web pages—it can even create an animated GIF version for browsers that don't support Shockwave.

Macromedia's Aftershock utility, which greatly streamlines the task of embedding Director projects in Web pages. You specify a Director project and check a few boxes, and Aftershock generates HTML and JavaScript, allowing reliable playback regardless of browser version or plug-ins.

Along with these enhancements come some nice tweaks, such as a new cursor editor that lets you create animated color cursors for your projects, and support for Macromedia Flash 2.0 files. While Director 6.5's documentation of its enhancements is clear and thorough, it's supplied

only electronically—in more than 40MB of HTML files.

Macworld's Buying Advice

If you're already a Director user, the QuickTime 3, Flash, and Java support alone in Director 6.5 are worth the upgrade price. But if you're a PowerPoint user fantasizing about effortlessly migrating your projects into Director, forget about it. Director 6.5's PowerPoint import Xtra is promising, but it needs to sup-

port the latest PowerPoint versions and capabilities before it can be considered truly useful.—JIM HEID

RATING: **PROS:** Well-rounded array of enhancements and feature tweaks. **CONS:** Some add-ons have frustrating limitations; new features lack printed documentation. **COMPANY:** Macromedia (415/252-2000, www.macromedia.com). **LIST PRICE:** Director 6.5 Multimedia Studio, \$995; upgrade from Director 6.0, \$199; upgrade from Director 4.0 or 5.0, \$399.

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RATING



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CoolDVD

DVD-ROM COMES TO THE MAC

NEW TECHNOLOGIES OFTEN take time to catch on, and DVD is no exception. DVD-ROM upgrade kits have been available on the PC platform for months, and E4 is the first company to ship a Mac version. But although the CoolDVD upgrade kit is a promising rookie, it doesn't yet deliver solid performance.

The CoolDVD replaces your internal CD-ROM with a DVD-ROM drive that reads everything your old drive could and adds support for playing back DVD titles



Who's Got the Remote? E4's CoolDVD Player software puts typical VCR buttons and advanced DVD controls at your fingertips.

with the help of a hardware decoder. E4 officials tell us they're working on a SCSI version of the kit, but the current offering is ATAPI-only, restricting its use to G3 Macs and a few older systems.

In addition to the DVD-ROM drive, the kit includes a PCI card that decodes the compressed DVD video, mixes it with the video from your Mac, and sends it out to your monitor. You also get a companion card with output jacks for sending the DVD video directly to a television monitor.

Installing the hardware is simple enough, so long as you're comfortable manipulating cards and cables and turning a few screws; the manual provides detailed installation instructions and helpful diagrams. The software installation was similarly painless until we couldn't get the player application to work. A phone call to the company revealed that our installation disk was missing an essential code library, which we downloaded from E4's Web site.

To play a DVD title, you pop it into the drive and fire up the player application. The CoolDVD player uses a familiar VCR-like interface, adding DVD-specific controls for accessing subtitles, alternative audio tracks, and camera angles. You can play a movie at full-screen size or place the video into

a resizable window on your desktop.

Unfortunately, wrangling the CoolDVD to do your bidding can be a challenge. The finicky player software occasionally refused to recognize a disc mounted before the application was launched. E4's decoder card had some trouble integrating the DVD video signal with the Mac video signal; the control interface and the mouse cursor sometimes refused to appear when a movie was running in full-screen mode.

The CoolDVD's video playback is adequate but not impressive. We tested several titles, running the video through both our Mac's monitor and a high-end consumer NTSC monitor (the Cool-

DVD supports both connections simultaneously). The computer monitor displayed pixilated artifacts, and some ghosting occurred on the NTSC monitor. Neither problem made the video unwatchable, but the defects were distracting even to casual observers. The video playback also froze momentarily four or five times over the course of a two-hour movie.

Performing as a 20x CD-ROM drive, the CoolDVD behaved much better. But as you'd expect, the device and drivers are optimized for reading back streams of uninterrupted data; the CoolDVD fared poorly when we tried to retrieve small chunks of randomly placed data, as a database application might do.

E4 engineers say they're working to cure some of the CoolDVD's hiccups. And to be fair, some interface oddities can be chalked up to DVD vendors' inconsistency in implementing the new standard.

Macworld's Buying Advice

If you've got a G3 Mac and you absolutely must be the first on your block to own a DVD-equipped Macintosh, the CoolDVD will do the job. But you can bet that in six months there will be better, cheaper devices available.—CAMERON CROTTY

RATING: **PROS:** Plays DVD titles on select Macs; adequate playback quality. **CONS:** ATAPI-only device; interface hitches and video glitches. **COMPANY:** E4 (408/441-6060, www.e4.com). **LIST PRICE:** \$499.

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Professional Audio Tools

CAPABLE COMPRESSION AND CONVERSION SOFTWARE

CONTENT PROVIDERS USING audio on the Web or in multimedia projects have two new professional sound tools to make audio-optimization tasks less onerous. QDesign Music Encoder Professional Edition 1.0 gives you control over parameters of file compression that the free QDesign Music

tag. Granted, SoundApp handles many of the same file types as BarbaBatch—AIFF, AU, WAV, Sound Designer I and II files, and MPEG audio layers I and II. However, BarbaBatch not only produces better-sounding files but can also batch-process them, performing one or more different conversions on multiple files in one pass.

You can change file type, sample rate, bit depth, and number of channels in one pass; add fade-in and fade-out; remove extraneous low-level sounds through gating; normalize a file; and employ a peak limiter to avoid distortion. BarbaBatch's limiter can be adjusted from -0.1 dB to -12 dB.

On BarbaBatch's downside, you can't capture a portion of a CD audio track, as QuickTime's capture engine allows—it's all or nothing. Another glaring drawback is the program's cumbersome copy-protection scheme.

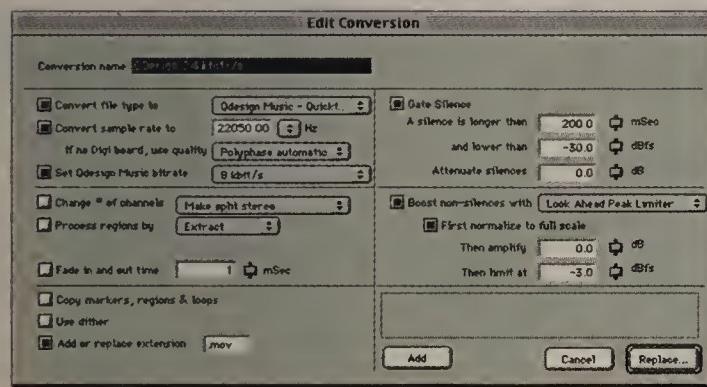
Audio Alchemy MacSourcery's BarbaBatch 2.4 converts sound files based on your customized parameters.

Codec Basic Edition included in QuickTime 3 doesn't. And MacSourcery's BarbaBatch 2.4 is currently the be-all and end-all of Mac sound-file conversion utilities.

QDesign claims that its encoder can compress audio files to $\frac{1}{100}$ of their original size while maintaining a reasonable measure of quality—making these files perfect for the Web. Although files compressed this tightly sound fairly unpleasant, the encoder can produce files of impressive quality at a compression level of 60:1 and less.

Most QuickTime 3 users would be hard-pressed to find a reason to spend \$395 for the Professional Edition, as the free Basic Edition is adequate for casual use. However, the Professional Edition not only compresses files nearly twice as quickly as the Basic Edition but also allows you to improve the character of a sound file. For example, you can "tune" the encoder for different kinds of music and optimize it for different connection speeds by altering attack sensitivity, spectral emphasis, and low- and high-pass cutoff. It also includes an extended range of compression levels—from 4 Kbps to 128 Kbps.

MacSourcery's BarbaBatch can also compress sound files, but file conversion is its real forte. Fans of SoundApp, Norman Franke's freeware sound converter (available at www.macdownload.com), may wonder what justifies BarbaBatch's price



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Macworld's Buying Advice

QDesign Music Encoder Professional Edition 1.0 and BarbaBatch 2.4 are too pricey for audio dabblers. But if you're serious about audio, the best compression tool and the best conversion tool money can buy.—CHRISTOPHER BREEN

BarbaBatch 2.4

RATING: **PROS:** Quality conversions; wealth of conversion options. **CONS:** Can't capture portion of CD audio track; copy protected.

COMPANY: MacSourcery (760/747-5995, www.macsourcery.com). **LIST PRICE:** \$395.

QDesign Music Encoder Professional Edition 1.0

RATING: **PROS:** Good compression/quality ratio; built-in QuickTime 3 support. **CONS:** Sound can be unpleasant at extreme settings.

COMPANY: QDesign (604/688-1525, www.qdesign.com). **LIST PRICE:** \$395.

Retrospect Express

PERSONAL BACKUP MADE SIMPLE

LIKE EATING RIGHT AND GETTING regular exercise, backing up our hard disks is one of those chores we all know we *should* do but always find some excuse to avoid. A simple, inexpensive backup product such as Dantz Development's Retrospect Express is probably the best hope for motivating more Mac users to get on the backup bandwagon.

Priced at \$250, Dantz's five-mouse-rated Retrospect 4.0 (see *Reviews*, October 1997) proves too pricey for many home- and small-office computer users, especially those who don't want or need all of the high-end program's bells and whistles. Targeting this SOHO crowd specifically, Retrospect Express offers all of Retrospect's capabilities aside from tape backup and remote-client support. All of Retrospect's other features—including unattended and incremental backups and support for all desktop-mountable removable-media drives and selected packet-recording CD-R drives—remain in the Express version, but at a dramatically reduced, sub-\$50 price.

Retrospect Express's straightforward manual walks you through backing up and



For the Rest of Us Retrospect Express's straightforward interface helps small-office and home-based Mac users tackle backup tasks with ease.

restoring your system. Clear, understandable screen shots and detailed explanations ensure that new users won't struggle with confusing concepts.

Informal tests bear out Dantz's claims that Retrospect Express's performance is identical to that of its full-featured sibling. More important for home computer users, backing up with Retrospect Express does not take appreciably longer than it would to manually copy the same files to a floppy or Zip disk. And Retrospect Express's built-in compression shrinks archives to anywhere from three-quarters to one-half the size of the original documents.

Dantz guarantees that, like Retrospect 4.0, Retrospect Express supports Mac OS 8.1 and its HFS+ file-management proto-

col. (In contrast, representatives of Charis-Mac Engineering said that its engineers haven't verified that CharisMac's Retrospect Express competitor, Backup Mastery, is 100 percent compatible with OS 8.1 and HFS+, although they expect it to work fine for most users.)

Even though its installer takes up a mere 1.5MB of disk space, Retrospect Express ships on CD-ROM. Dantz claims that only a handful of users out of thousands have requested floppy disks, but the company is considering a segmented, floppy-based option for the next version.

Macworld's Buying Advice It's a rare consumer-oriented program that serves the needs of a wide variety of users without compromise; Retrospect Express is among this select group. Although network administrators who manage several machines and those who need to back up to a tape drive should continue to use the full version of Retrospect, everyone else can take the Express.—KEVIN MITCHELL

RATING: **PROS:** Fast, dependable backup; straightforward, helpful documentation; HFS+ support. **CONS:** None significant. **COMPANY:** Dantz Development (925/253-3000, www.dantz.com). **LIST PRICE:** \$49.95.

Text Cleaner

TYPOGRAPHICAL TOOL NEEDS WORK

ALONG WITH LAST-MINUTE deadlines and demanding clients, one of graphic designers' biggest aggravations is improperly formatted text—straight quotes instead of curly; hyphens rather than en and em dashes; and multiple spaces, returns, and tabs—which often requires repeated and time-consuming search-and-replace operations. Studio 405's Text Cleaner 1.0 offers a quick fix for this problem, purporting to correct common typographical errors in one pass.

In addition to the mistakes listed above, Text Cleaner performs such esoteric functions as removing spaces before and after a hyphen, changing curly quotes to straight quotes for foot and inch measurements, and stripping out e-mail quote symbols (>).

To make changes, you select from 20 different cleaning options and then either click on the Clean File button to select and clean an ASCII text file or choose Clean Clipboard to repair cut or copied text. You can also drag text files onto Text Cleaner's DropClean AppleScript applet; Text Cleaner then launches automatically, cleans the text, and creates a new document with



Clean Screen A bare-bones interface lets you select from Text Cleaner's host of cleaning options.

the suffix (*Clean*) appended to the file name.

Alas, the phrase "too little, too late" aptly describes Text Cleaner's abilities. Many programs already offer a built-in utility that addresses some of these typographical issues. Microsoft Word 98, for example, sports an AutoFormat feature that makes, in one pass, many of the same repairs. Casady & Greene's Spell Catcher likewise allows you to remove extra spaces, line breaks, and tabs as well as straighten or curl quotes. And Newer Technology's SpellTools does a fine job of normalizing spaces and returns in a text file.

But Word 98 doesn't offer as many kinds of corrections as Text Cleaner, and

neither Spell Catcher nor SpellTools tackles multiple errors at once—you must invoke a separate command for each operation. The limitations of its competitors might give Text Cleaner the edge if it offered comprehensive cleaning to every file. Regrettably, it doesn't.

In my e-mail test file, Text Cleaner refused to remove multiple quote characters (>>, for example). In an ill-formatted document downloaded from the Web, Word 98 did a far better job of creating logical paragraphs—Text Cleaner jammed most of the text together into several long paragraphs. Text Cleaner's Clean Clipboard command is limited to files no larger than 32K, and because Text Cleaner deals only with ASCII text files, you must reformat Word and AppleWorks documents as plain text files before cleaning.

Macworld's Buying Advice Although Text Cleaner offers more text-cleaning options than the competition, it's limited in the kinds of files it cleans and doesn't clean as completely as I'd like.—CHRISTOPHER BREEN

RATING: **PROS:** Wide variety of cleaning options. **CONS:** Cleans ASCII text only; misses some spots. **COMPANY:** Studio 405 (301/270-8445, www.studio405.com). **LIST PRICE:** \$110.

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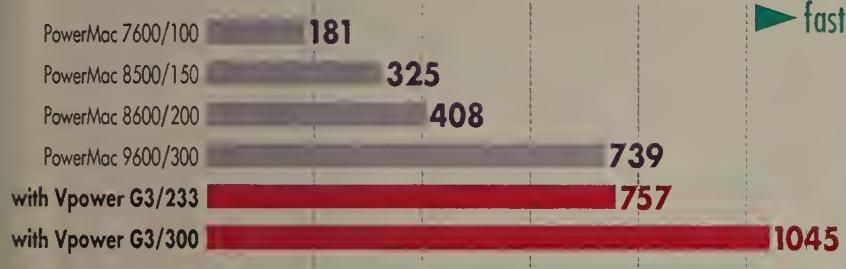
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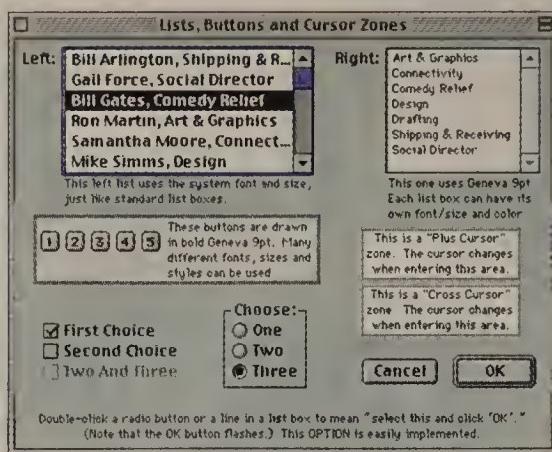
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Tools Plus 4.0

FAST CODE MODULES FOR C/C++ AND PASCAL APPLICATIONS

ALL THE HYPE ABOUT JAVA notwithstanding, most of the programs you use every day were probably written in C++, and a surprising amount of vertical-market software is still based on Pascal. Water's Edge Software has updated its excellent collection of software tools for these mainstream languages to work with Mac OS 8 and the latest compilers from Metrowerks and Symantec. Tools Plus 4.0 incorporates dozens of changes developers have suggested since the last release, from alerts to zeroing methods, and includes megabytes of code you won't have to write for yourself.

All Mac programs share thousands and thousands of lines of code—for window-handling and mouse operations, for example. There are visual-programming methods for coding application-interface basics, but for producing compiled applications that run fast—with minimal overhead for basic tasks—Tools Plus 4.0's highly optimized pieces of plain-text code are better than any visual-programming alternatives. The code libraries include routines for cre-



Cool Tools Besides framework code and detailed documentation, Tools Plus 4.0 offers a demo application that lets you shop for interface details.

ating pop-up menus, floating tool palettes, sliders, buttons, and progress indicators, all with the 3-D platinum look of OS 8. (Minor appearance anomalies under OS 8.1 will be resolved in online updates.)

Among the improvements in version 4.0 are pop-up menus that can be hierarchical; drop-down menus that work as well as the pop-ups; dialog boxes that use the new DFTB table, which supports font color; PowerPC code rewritten with the latest version of the headers format; and simplified code for switching among open windows. The improvements (and the underlying code) are showcased in an interactive demo

that helps even programming novices understand how to add interface elements.

Tools Plus 4.0 is available in several bundle options, ranging from the C/C++/Pascal tool kit for the latest CodeWarrior Pro to a version for the old Symantec Think Pascal (discontinued by Symantec but now free from the Water's Edge Web site). All the packages offer thorough and friendly paper documentation, helpful tutorials, and diligent online support.

Macworld's Buying Advice Tools Plus is the first professional programming tool for beginners, in the sense that it lets you add commercial-quality interface details to modest projects. It offers smaller, faster code modules than you could write yourself (unless you've had years of practice), along with expert advice on how to use them. If you work in C/C++ or Pascal, Tools Plus 4.0 will help you produce better shareware or commercial applications.—CHARLES SEITER

RATING: **PROS:** Generous assortment of professional-quality tools; superior documentation and support. **CONS:** Needs minor OS 8.1 updating. **COMPANY:** Water's Edge Software (416/219-5628, www.interlog.com/~wateredg).

LIST PRICE: For CodeWarrior Pro, \$249; for Symantec Think compilers (C/C++/Pascal), \$199.

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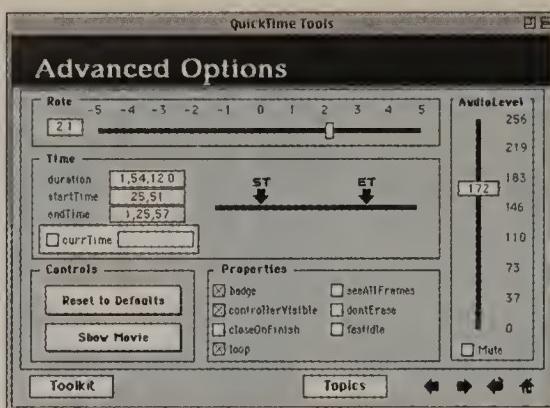
HyperCard 2.4

LEGACY AUTHORIZING TOOL MEETS
QUICKTIME 3.0

WHEN APPLE INTRODUCED HyperCard in 1987, the easiest-to-use computer suddenly became the easiest-to-program computer. Eleven years later, programming with HyperCard is still amazingly easy. You simply design cards (screens), add buttons to link the cards, fill in dialog boxes to program the buttons and cards, and perhaps write a little HyperTalk code, and you've got a stack—an interactive HyperCard document that can be compiled as a stand-alone application.

With Version 2.4, HyperCard now takes full advantage of QuickTime 3.0's wealth of new features and offers automatic linking to the Web. But this new version still looks a bit too old-fashioned to stand out among today's slick multimedia authoring tools.

During HyperCard's golden age, Apple bundled the program with every new Mac. HyperCard is still a uniquely powerful, flexible environment for creating custom software and interactive documents. Beginners can create rich multimedia with minimal



Pretty on the Inside HyperCard 2.4's antiquated interface showcases solid QuickTime 3.0 support.

training, and seasoned programmers can build customized database-driven applications with ease.

But it's hard to take HyperCard seriously when, after 11 years, it still sports the black-and-white interface designed for the original 9-inch Mac screen. You can create color stacks, but not without complications or compromises. And because there's no Windows player for HyperCard stacks, your applications aren't accessible to anyone using a Windows-based machine.

HyperCard 2.4 doesn't solve these problems, but its support for QuickTime 3.0 is a significant step in the right direction. HyperCard can now open and display any file type supported by QuickTime 3.0,

including GIF, MPEG, WAV, AVI, and QuickTime VR. HyperCard's Find command lets you jump to any spot in a QuickTime movie that contains a match in the text track. And HyperCard's QuickTime Toolkit stack contains tools and documentation for controlling all kinds of movie parameters, including location, speed, volume, and start and stop points. You can also now easily establish links from HyperCard stacks to the Web.

Macworld's Buying Advice If you own HyperCard 2.3, the upgrade is a no-brainer: just download the free 2.4 updater from www.apple.com/hypercard/. If you've decided to dabble with programming and you seek an easy-to-learn, friendly authoring tool, HyperCard 2.4 is a good choice—provided your audience is all-Mac. But if you need a state-of-the-art, cross-platform multimedia environment, stay tuned—the HyperCard team is still hard at work.

—GEORGE BEEKMAN AND TODD SHECHTER

RATING: **PROS:** Easy to learn; flexible; extensible; supports QuickTime 3.0. **CONS:** No Windows player; outdated black-and-white interface; mediocre support for color. **COMPANY:** Apple Computer (408/996-1010, www.apple.com). **COMPANY'S ESTIMATED PRICE:** \$99.

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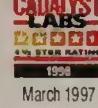
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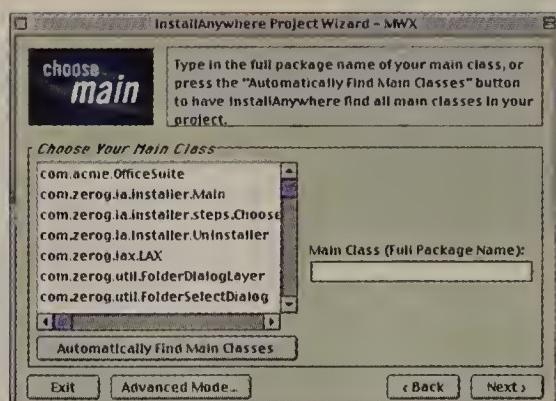
InstallAnywhere 2

SOLID JAVA-APPLICATION PACKAGER

FOR DEVELOPERS, GETTING JAVA applets to run in a Web browser is easy; getting Java applications to run independently is considerably more difficult. That's particularly true for Mac-based developers, who have to learn dozens of file-structure details to make Java applications open and run correctly on Windows and Unix platforms. Zero G Software's InstallAnywhere 2 solves these Java-installation problems by automatically bundling Java application code with the appropriate platform-specific files, guaranteeing that if a Java app runs on your Mac, it will run correctly on other platforms as well.

InstallAnywhere lets you work in Advanced or Wizard mode. With the intelligent Project Wizard, all you do is specify the installation platforms; the Wizard examines your project files to identify the main classes, specify class paths, bundle the appropriate Java virtual machine, and package all the extra files for each platform into final applications. Each application has a double-clickable icon and can be distributed via CD-ROM or the Web.

In Wizard mode, InstallAnywhere is



Wizardry InstallAnywhere's Project Wizard bundles Java code with platform-specific files and turns it all into a double-clickable application package.

slow—you'll spend several minutes grinding through screens as the program works through a set of decisions (which you create for yourself in Advanced mode). However, this approach is faster and less error-prone than determining the correct order of archived files and folders on your application's Java class path by yourself. Another minor annoyance is the Windows look of interface details, such as folders with up and down arrows and occasional awkward fonts.

InstallAnywhere is available in two forms. The best choice for distributing commercial applications is the Standard Edition, which offers three install options (minimum, typical, and full) and includes

"billboards" that are displayed while the application is being installed. It also packages upgrades for Web downloading. The Express Edition creates a single, no-options installer and doesn't support incremental upgrades (you need to repack the entire application each time), but it's a good choice for in-house projects and shareware developers. Zero G is also preparing an ambitious \$3,995 Commercial Edition—essentially a self-contained Java development environment—for release later this year.

Macworld's Buying Advice InstallAnywhere has given the Macintosh a welcome boost as a Java development tool. For Mac Java developers who want to ship code to Windows and Unix clients without studying other operating systems in elaborate detail, InstallAnywhere 2 is the only game in town. Idiosyncrasies and all, it's a great improvement over guessing your way through Windows and Unix Java setups.—CHARLES SEITER

RATING: **PROS:** Insulates Mac developers from cross-platform configuration requirements. **CONS:** Slow; Windows-based design. **COMPANY:** Zero G Software (415/512-7771, www.zerog.com). **LIST PRICE:** Express Edition, \$495; Standard Edition, \$995.

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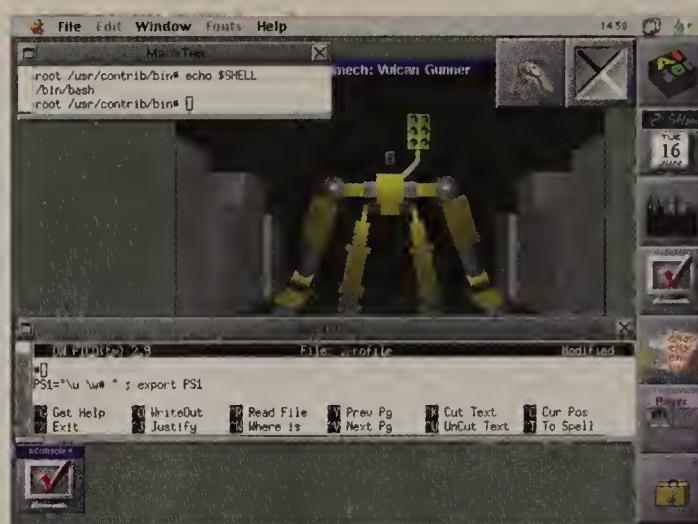
Power MachTen 4.1

UNIX AND THE MAC OS TEAM UP

THE LEAST EXPENSIVE PATH TO running Unix on a Power Mac is PowerPC-native Linux—just be prepared to spend some time partitioning your hard disk, configuring drivers, and setting up your system. If you have Mac OS software you'd like to continue using and want to avoid configuration hassles, a better option might be Tenon Intersystems' Power MachTen 4.1.

A BSD Unix version running on a Mach microkernel, Power MachTen 4.1 coexists with the Mac OS rather than supplanting it. Unlike PowerPC Linux, which requires a dedicated Mac, Power MachTen runs as a Mac application. As such, it's bound by the limitations of the Mac OS environment—for example, it doesn't offer memory protection or preemptive multitasking as Linux does. Still, using Power MachTen feels just like using a BSD Unix on a workstation.

The package includes standard networking software, utilities, and other useful Unix software, such as Perl 5 and the Apache Web server. In addition, it automatically installs a full suite of Unix devel-



Unix on the Mac Power MachTen 4.1 is a full, Unix-based X Windows environment that runs as a Mac application.

opment tools; much (but not all) of the open-source software that compiles under other BSD Unixes will compile under Power MachTen.

After you install the 350MB of software and perform minimal configuration in the MachTen control panel, you can launch Power MachTen just like any other Mac application. After logging in, you're in a fully functional Unix environment with network access—and without painful driver configuration and setup hassles. If you prefer a graphical user interface or want to run software that requires one, starting up the built-

in X Windows environment takes only a keyboard shortcut.

Unlike an emulator, Power MachTen runs natively on the PowerPC, offering performance competitive with that of many workstations. The compilers that come with Power MachTen generate native PowerPC code as well; software ported to Power MachTen will execute as fast as your Mac can run it.

Macworld's Buying Advice

Power MachTen 4.1 is an eminently usable version of Unix that—unlike PowerPC Linux—doesn't ask you to forfeit the Mac OS. Although it doesn't offer

memory protection or preemptive multitasking, features many Unix users rely on, Power MachTen is a good solution for anyone who wants to run or develop Unix software on a Macintosh.—STEPHAN SOMOGYI

RATING: **PROS:** Excellent Mac OS integration; offers a full-featured Unix distribution.

CONS: Moderately expensive; no memory protection; some Unix source will not compile easily.

COMPANY: Tenon Intersystems (805/963-6983, www.tenon.com). **LIST PRICE:** \$495.

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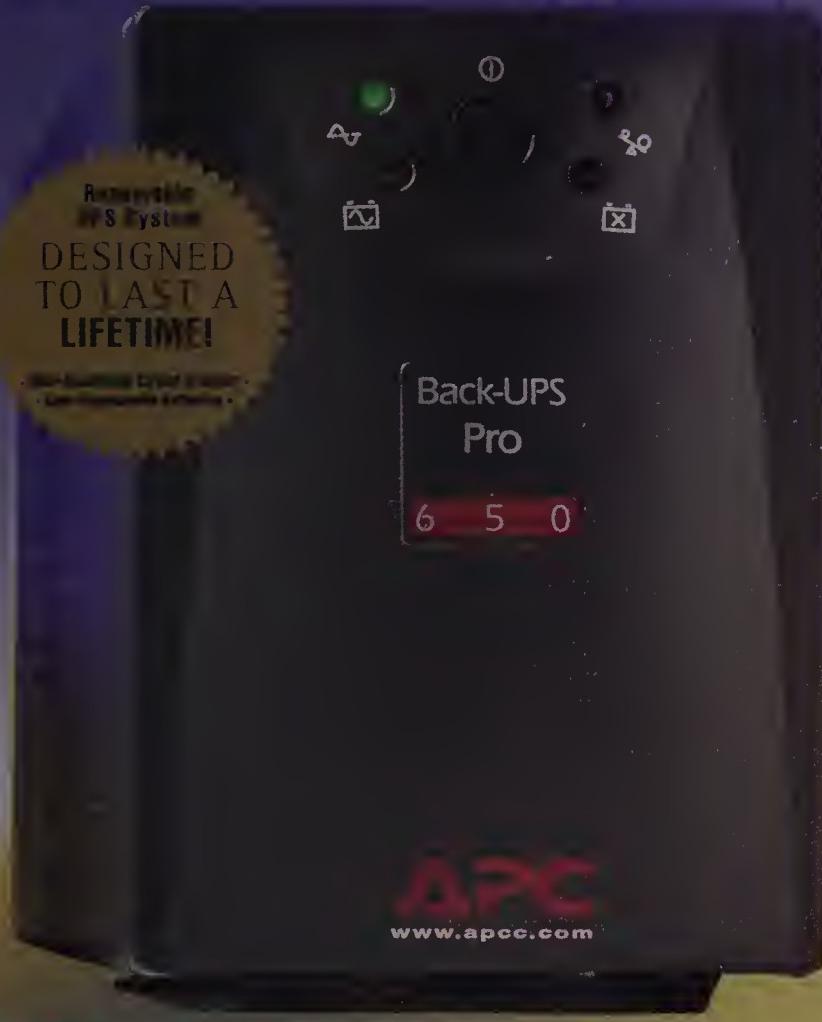


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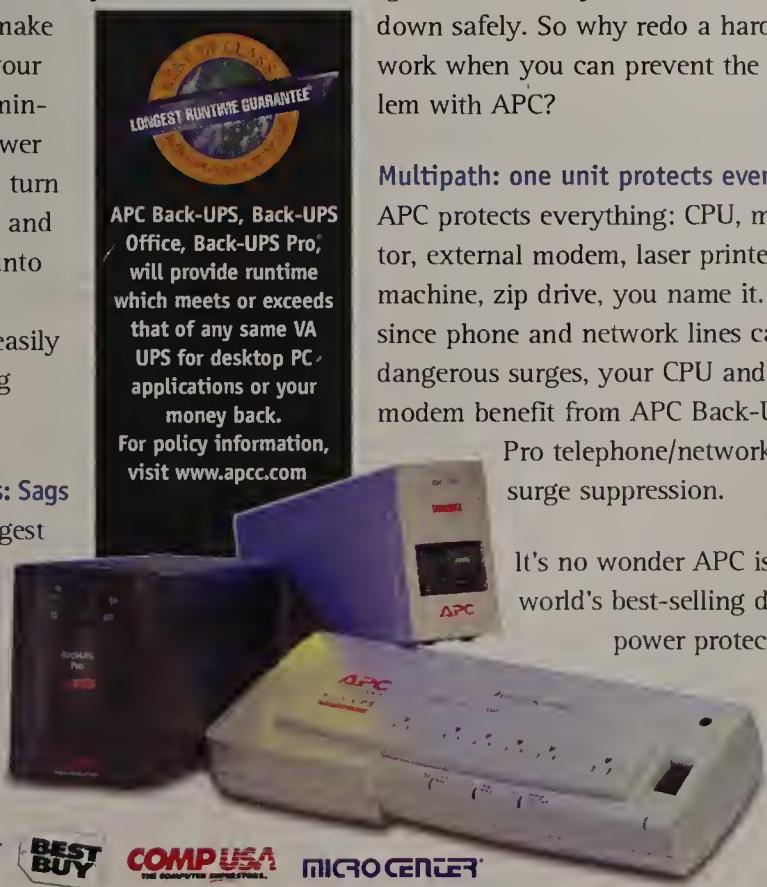
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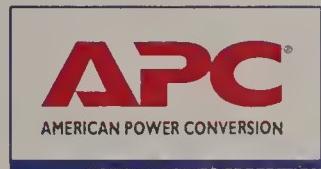
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Today's applications are so full of features, even grizzled veterans may not realize that they could be taking better advantage of the programs they thought they'd mastered.

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GENERAL MAC TIPS

1. HOT-WIRED PAGE PREVIEW Not all programs have a Print function. But you can add it to those that don't by installing a copy of the DeskWriter 500 series driver from <ftp://ftp3.hp.com/pub/printers/software/dw110en.hqx>—even if you don't own a DeskWriter! Once you've installed the software and restarted your Mac, select the DeskWriter icon in the Chooser, choose Print, and click on the Preview button to see a preview of your document.—CB

2. MAKE WORDS STICK TOGETHER It's annoying to find words and numbers that should be linked—such as a date and time—torn apart because the entire group couldn't fit at the end of a line. Many applications let you use a **nonbreaking space** to keep text grouped. To make your words stick together, type option-spacebar between each of the words in the group.—CB

3. THE ONE-STEP ALIAS You rarely need an alias in the same folder as its original item, but that's where the **Make Alias** command puts it. Then you have to drag the alias where you really want it. To create and place an alias in a different location, press ⌘-option while dragging the original item. As you do this, a small curved arrow appears at the base of the cursor to indicate you're producing an alias.—LP

4. COLLAPSE BACKGROUND WINDOWS A window's handy windowshade box disappears if the window is in the background. But you can still roll up the window—just double-click on its title bar. If the window is part of the currently active application, it'll stay in the background.—LP



5. EASY-TO-DRAG WINDOWS

That thicker border around the sides and bottom of a Mac OS 8 window is more than decorative. Grab a window anywhere along its thick border to drag it to a different location.—LP

6. REALLY CLOSE THOSE WINDOWS

It's no secret that $\text{⌘}-\text{W}$ closes a Finder window and $\text{⌘}-\text{option}-\text{W}$ closes all Finder windows. In Mac OS 8.1, $\text{⌘}-\text{shift}-\text{W}$ not only closes a pop-up window but gets rid of its tab as well. $\text{⌘}-\text{option}-\text{shift}-\text{W}$ closes all Finder windows and gets rid of all pop-up window tabs.—LP

7. SAMPLE COLORS ANYWHERE

Need to grab a color from some other application? With Mac OS 8, it's no problem: once the Apple color picker is open, hold down the option key to get an eyedropper tool, with which you can sample any on-screen color.—JS

8. COLLAPSE OR EXPAND ALL WINDOWS

Collapse all of an application's windows by option-double-clicking the title bar of any expanded window. Conversely, option-double-click a collapsed window's title bar to expand all the windows in the same application. Option-clicking the frontmost window's Collapse box collapses all the windows in the same application (or expands them, if the frontmost window is already collapsed).—LP

9. HIDING BUTTONS IN OS 8

To easily place one button over another in the Mac OS 8 Finder (a nifty trick for hiding a button), under the View menu choose View Options and then select Always Snap To Grid. Now place the

"covering" button over the button you wish to hide. For complete coverage, be sure that the name of the covering button is longer than the name of the hidden button.—CB

10. TIDYING UP LOOSE BUTTONS

In Mac OS 8, you can place scattered buttons in neat order in the upper-left corner of a window. First select any of the

Arrange entries in the View menu. Then, to allow buttons a little more headroom, click on the window's size box (the box-within-a-box icon on the right side of the window's title bar).—CB

11. HIDDEN CHARCOAL CHARACTERS

You can generate keyboard characters such as the ⌘ and option-key symbols in OS 8's Charcoal font, using the following key combinations: control-Q, for ⌘ ; control-G for the option symbol; control-W, backward-delete symbol; control-J, forward delete; control-D, shift symbol; control-Y, up-arrow symbol; control-P, down arrow; control-Z, right arrow; control-X, left arrow; and control-T, Apple symbol.—CB

12. THE FLOPPY SWAP

To copy a file from one floppy disk to another without using the hard disk as an intermediary, you must eject the floppies without dismounting them. To eject a floppy without dismounting it in Mac OS 8, select the disk icon and then hold down the option key as you select Eject (which changes to Eject And Leave Behind). Or, just press $\text{⌘}-\text{option}-\text{E}$.—ACE

13. RESIZING DESKTOP PICTURES

If your picture isn't exactly the right size for your monitor, the pop-up menu in Desktop Pictures offers several options for resizing it. Tile On Screen repeats your too-small picture, side by side and top to bottom, until the screen is completely filled. Center On Screen puts the picture in the middle of your desktop and fills the leftover margin with whatever desktop pattern you've chosen.—DP

14. THE UNKNOWN POSITIONING KEYS

In Mac OS 8's Desktop Pictures control panel, the pop-up menu controls the size of your image, but not its position. If your chosen picture is smaller than your screen, you can slam your image against the top, bottom, left, or right side of the screen by pressing the arrow keys while holding down the option key. For example, if you choose the pop-up menu's Center On Screen option, press option-up arrow to align your picture with the top of the desktop (against the menu bar). With the Tile On Screen option selected, you can use the same keystrokes to determine the starting point for tiling a picture.—DP

15. MANAGE EXTENSIONS YOURSELF

Behind the scenes, Extensions Manager moves files from the Extensions folder into a folder named Extensions (Disabled), where the Mac ignores them. Likewise, control panels you turn off get moved into a folder called Control Panels (Disabled). Knowing about these folders is a troubleshooting advantage; you can restore an extension by moving it back into the Extensions or Control Panels folder, even if Extensions Manager isn't around.—DP

16. HIGH-POWERED LAUNCHER

Your Launcher window can be a lot smarter than you might think. Just open your System Folder, open the Apple Menu Items folder, and drag the Recent Documents folder into the Launcher Items folder. While you're at it, make an alias of that Recent Documents folder and put it back in the Apple Menu Items folder. Back in the Launcher Items folder, put a bullet (•) in front of the Recent Documents icon's name by pressing option-8. Now you have a new window of continuously updated Launcher icons displaying the documents you most recently worked on. Do the same with your Recent Applications and, if you're on a network, Recent Servers folders.—DP

17. APPLETALK TOGGLE SWITCH

Here's how to put a handy on/off switch on your Control Strip for AppleTalk in OS 8: Open your Apple-

Talk control panel; choose Configurations from the File menu; and duplicate the currently selected configuration, naming it AppleTalk Off. Click on Make Active to return to the main control panel. Now, from the Edit menu, choose User Mode, click Advanced, click OK, click Options, click Inactive, and click OK. Close the control panel, and save changes. Repeat these steps—but name this configuration AppleTalk On and choose Active (instead of Inactive) in the final rush of clicks. Now when setting up your Location Manager locations, you can use your two new AppleTalk settings as part of an AppleTalk & TCP/IP location setting.—DP

18. CHECKING UP ON RETROSPECT

If you're using Dantz Development's **Retrospect** on a remote server to back up the office's computers but would rather not hike across the office to check Retrospect's log, there's a way to save yourself the trip. Log on to the server from your desktop Mac, navigate to the Operations Log (System Folder: Preferences: Retrospect: Operations Log), create an alias of the log, and copy it to your Mac. If you have Retrospect on your Mac and you double-click on the file, the server's Operations Log opens within Retrospect.—CB

19. A LEVEL PLAYING FIELD

If you find Bungie Software's **Myth: The Fallen Lords** a bit too challenging, just start the game at an easier level. Hold down the spacebar while selecting New Game, and you'll see a list containing the name of every level in the game. Click on the level you want and press OK to start.—CB

20. RIVEN MOVIES REVEALED

Cyan's Riven game contains hundreds of movies, which you can supposedly see only by playing the game. But there is another way: download a copy of Bo Lindbergh's freeware application Riven Movie Snoop (from www.macdownload.com), launch it, insert one of the Riven CDs, and open one of the files contained within the Data folders. A window appears with a numbered list of movies. Select one of the numbers and click on the Play button at the bottom of the window to view the movie.—CB

21. EASIER QUAKE AIMING

For players of MacSoft's Quake who don't have the truest aim, there's an easy aid built right into the game. With Quake open, press the tilde (~) key to reveal the Command Console. When it appears, type **Crosshair 1**, press return, and then press the tilde key again. A small crosshair appears on your screen, indicating exactly where your shots will hit.—CB

22. NUKE 'EM EVERY TIME

Graphic Simulations' F/A-18 Hornet and F/A-18 Korea let you outfit your fighter with nukes in only a few missions. Here's how to cheat your way to a nuke on each wing: In the Station Loadout area of the preflight section, set each weapon station to empty. Click and hold just to the right of the last check box in the Empty row, and a red check mark will appear in the margin. You can now place a B-57 (tactical nuke) on pylons 2 and 8.—CB

ALTHOUGH ADOBE PHOTOSHOP 5 LETS you add effects such as bevels and embossing to type while maintaining the type's editability, you can't directly apply image effects such as gradients, textures, photos, and filters to text without converting it to pixels. But using a color layer and a clipping group, you can add these effects to your text without losing its editability.—LD and JD

STEP 1

With the type tool, click on your background image and type your text in the Type Tool dialog box to create a type layer. (Give the type a color similar to that of the fill you plan to use, to get a better idea of how the final art will look as you add effects.)



STEP 2

Choose the effect you want (here we chose Bevel and Emboss) from the Layer submenu of the Effects menu, and click on the Apply button in the Effects dialog box. (You can add additional effects by choosing them from the pop-out menu next to the Apply button.)



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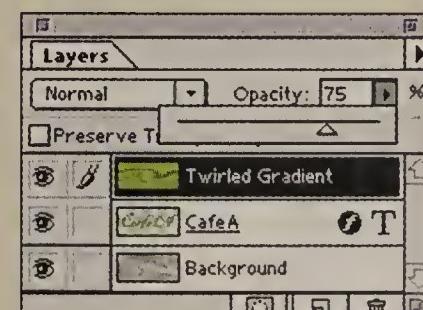
STEP 3

To add a color layer above the type, click on the New Layer icon at the bottom of the Layers palette. (We made a gradient of several greens with the gradient tool and applied Filter, Distort, and Twirl; then we adjusted the layer's opacity.)



STEP 4

Make a clipping group of the new layer and the type by option-clicking on the boundary between them in the Layers palette. With all the layers still intact, you can edit the type (by double-clicking on the "T" icon), change the dimensional effect (by double-clicking on the "f" icon), or change the color (by modifying the top layer).



FINAL IMAGE





PRODUCTIVITY

24. SLIM DOWN CONVERTED WORD 98 FILES

When you use Microsoft Word 98 to convert Word 6.0 files by opening and saving them, their size tends to double. However, if you create a new file with the Save As command, the file will be roughly the same size as the original.—ACE

25. SELECTIVE PROOFING IN WORD

If you have text that you know Word 98's spelling and grammar checkers will choke on (such as product names), you can force the checkers to ignore it. Select the text, and then from the Tools menu, choose Set Language from the hierarchical Language menu. At the top of the list of languages in the Languages dialog box, select No Proofing, and click on OK.—ACE

26. OK, GO AWAY

Are you sick of having to click on OK when Word 98 tells you it's finished searching a document? Just turn on Word 98's Office Assistant. Even though the assistant presents an OK button when informing you that Word has finished searching, you don't actually have to click it; just click anywhere in your document to make the dialog box disappear.—ACE

27. VIEW FOOTNOTES, COMMENTS, AND REVISIONS

With support for revision marks turned on, Word 98 lets you see footnotes, com-

ments, and revision marks, even in Normal view. Just place the cursor over an item, and you'll see the text of the footnote, the text of the comment, or the name of the person who made the revision, all in a yellow pop-up window.—ACE

28. EDITING URLs IN WORD 98

Although you can click on a URL in Word 98 to open it in a Web browser, you can't click within the URL to edit it.

Instead, click on either side of the URL and use the appropriate arrow key to move it into the URL, at which point you can add or delete characters.—ACE

29. CHANGE HYPERLINK STYLES

Word 98 automatically colors and underlines all URLs, which is fine on screen but usually not fine for printed documents. To change the default settings, open the Style dialog box, Select Hyperlink from the style list, click on the Modify button, and choose Font from the Format pop-up menu in the Modify Style dialog box. Choose None from the Underline pop-up menu in the Font dialog box and Black from the Color pop-up menu. Back in the Style dialog box, select Followed Hyperlink and repeat the process.—ACE

30. VALIDATING DATA IN EXCEL

You can prevent entry of invalid data in Microsoft Excel 98 by turning on data validation for any range of cells to have Excel display a warning when an incorrect value is entered. Select a range of cells, and then choose Validation from the Data menu. From the Allow pop-up menu, choose the type of data to allow, and using the Data menu and fields below, set your data ranges.—ACE

31. TAB FOR TABS

To navigate Microsoft Office 98's tabbed windows without the mouse, hold down the control key and press the tab key. To reverse that direction, hold down control-shift and press the tab key.—CB

32.

MAKING THE WORD CONVERTER WORK

Word 5.1 users, take note: Do not simply copy the Word 97-98 Import converter from the Office 98 CD-ROM to your Word Commands folder—it won't work. Instead, run the Word 97-98 Converter Installer, which you'll find in the Text Converters folder under Value Pack.—CB

33.

USING THE RIGHT LAYOUT

To make a FileMaker Pro database always open to a specific layout, click on the pull-down menu at the top of the Preferences dialog box and choose Document. In the Document Preferences dialog box, click on the box next to Switch To Layout and choose a layout from the pop-up menu.—WS

34.

ADDING INSTRUCTIONS TO FIELDS

With its Define Fields command, FileMaker Pro lets you include instructions or reminders that disappear when data is entered into a field. In the dialog box, create a calculation field. Click on the Options button to specify an equation that states If(IsEmpty(Customer Name), "Type the customer name here", ""). In Layout mode, position the calculation field over the Customer Name field, and then send it to the back of the layout (⌘-shift-J).—WS

35.

PRECISELY POSITIONING ELEMENTS

You can precisely position fields, buttons, and other elements with FileMaker Pro's layout tools. In Layout mode, click on an element and choose Size from the Show menu to bring up a palette that lets you reposition and resize the element by pixels, inches, or centimeters. For a bit less precision, you can use the arrow keys to nudge an element in one direction or another.—WS

36.

MULTIPLE REQUESTS IN FIND

In FileMaker Pro's Find mode, typing Smith in a name field and California in an address field yields all clients named Smith in California. But you can also look for all clients named Smith and all clients in California by typing your first request (Smith in the name field) in Find

42. MASTERING MASTER-PAGE ELEMENTS IN FREEHAND

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mode and then pressing **⌘-N**. In the blank record, type your next request (**California** in the address field). To find all Smiths *except* those in California, type **Smith** in the name field on your first Find screen, press **⌘-N**, click on the Omit box, and type **California** in the address field.—ws

37. ADD SIMILAR ELEMENTS TO YOUR LAYOUT

It's easy to add a field or button that shares characteristics (such as size, shape, font, or style) with fields or buttons that you've already placed in your **FileMaker Pro** database. In Layout mode, click on the element and copy and paste it. Double-click on the copy to bring up the Specify dialog box to change the field or button.—ws

38. DIALOG BOXES AT YOUR COMMAND

You can double-click on elements in **ClarisWorks Office 5**'s text ruler to instantly summon the Paragraph, Tab, and Section dialog boxes. Double-click on a paragraph-alignment icon or on the center of the line-spacing icon (for the Paragraph dialog box), on any tab icon (Tab dialog box), or on the center of the columns icon (Section dialog box).—SAS

39. KEEP YOUR HANDS ON THE KEYS

Tired of reaching for your mouse to click on dialog-box buttons in **ClarisWorks Office**? Instead, press the **⌘** key. Most buttons in **ClarisWorks** dialog boxes have keyboard equivalents that are shown when you hold down the **⌘** key.—SAS

40. SHOW ME THE BUTTONS

Unless you have a very large monitor, you probably aren't able to see all the buttons in **ClarisWorks Office**'s default button bar. To display them all, drag the inner edge of the button bar to increase its number of rows or columns.—SAS

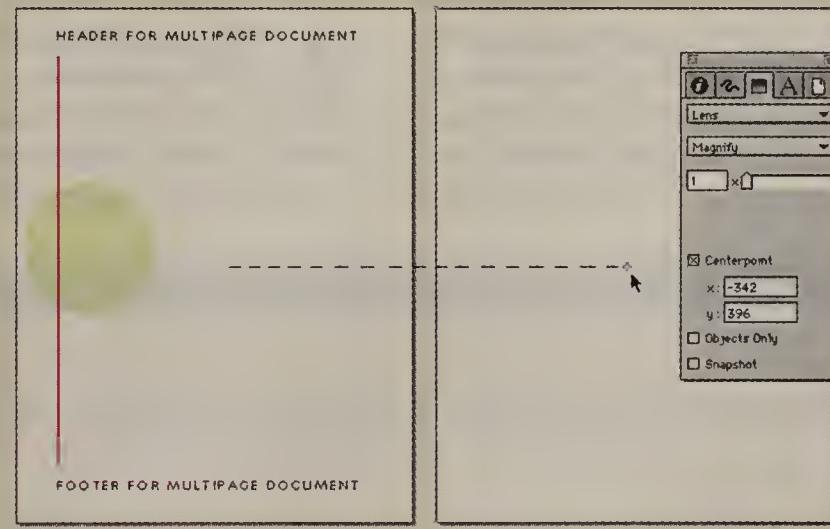
41. MAKE YOUR LINKS DO MORE

The URL links feature in **ClarisWorks** lets you place clickable links to Web pages in your documents. However, you can specify a prefix other than *http://* to make the link perform other functions, such as download files from an FTP site (use the prefix *ftp://*) or launch an e-mail program and send mail to a designated address (*mailto:*).—SAS

MACROMEDIA FREEHAND 8'S LENS FILL AND CENTERPOINT OPTIONS TOGETHER give you a way to outfit multipage documents with master-page elements such as headers and footers, similar to those you can create in publishing programs such as QuarkXPress and Adobe PageMaker. You can then edit an element on one page while simultaneously updating all the other pages.—AH

STEP 1 After creating your multipage document, make the first page your Master Elements Page by creating all your repeating elements—type and FreeHand-created or placed graphics—on that page. Then, on page 2 of your multipage document, draw a rectangle that fills the entire page. With this rectangle selected, open the Fill Inspector (**⌘-option-F**) and choose Lens for the fill type and Magnify for the type of lens fill.

STEP 2 Set the magnification level to 1X and select the Centerpoint check box, and you'll see a center point in the middle of your rectangle. Select the center point and move it to the center of the Master Elements Page. Everything from that page now shows up in the rectangle you drew on page 2.

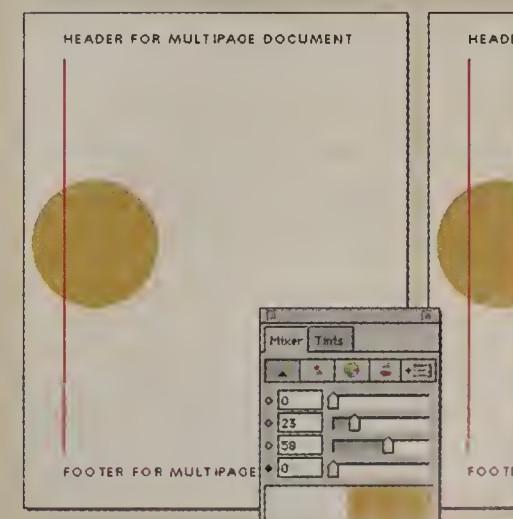


Page 1 (Master Elements Page)

Page 2

STEP 3

To place master elements on other pages, just clone (or duplicate) the rectangle with the lens fill and move the copies to those pages. The center point always stays the same relative to your Master Elements Page. Now any changes you make to the elements on the Master Elements Page (such as specifying a different tint) are instantly reflected on each of the other pages.



BONUS STEP One additional step is needed to make new elements drawn on the Master Elements Page show up in lens fills on the other pages. Using Paste Inside, simply put your master-page elements into a rectangle on that page. Then when you create a new element on the master page, cut and paste it inside that same rectangle to make the new element show up in all those other lens fills.

43. USE PC FILE EXTENSIONS

If you work in a cross-platform environment, be sure to always add the PC file extension (such as .tif for TIFF files, .qxd for QuarkXPress files, and .doc for Microsoft Word files) to your file names. That will let PC users see the correct icon when they get those files.—GG

44. SHORTCUT ALIASES

Programs with versions on both platforms generally have identical keyboard shortcuts. On a PC, think of the Alt key as option and Ctrl as ⌘. Try affixing labels with the Mac keys' names on their PC counterparts.—GG

45. MAC-INTIZE YOUR PC

To make Windows act more like a Mac, drag the Start menu to the top of your screen; then the pull-down menus really will pull down. To simulate the Mac desktop, drag the icons for your various drives from the My Computer and Network Neighborhood folders to the desktop; this will create for each

drive an alias that works like the Mac's desktop drive icons.—GG

46. ZIP OR JAZ FROM PC TO MAC

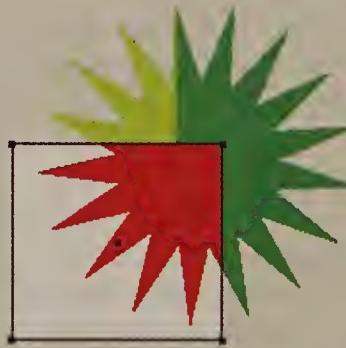
To work with PC-formatted Zip or Jaz disks on your Mac, be sure to download the version 6 driver from Iomega's Web site (www.iomega.com). If you're using Software Architects' DOS Mounter 95 instead of Mac OS 8's PC Exchange, you can use the existing Iomega Driver. Just rename it nIomega Driver; this lets DOS Mounter 95 handle PC-formatted disks while Iomega Driver handles Mac-formatted disks.—GG

GRAPHICS AND PUBLISHING**47. AUTOSELECTING LAYERS**

Adobe Photoshop 5's Move tool now has an Auto Select Layer feature, which you set in the tool's Options palette.

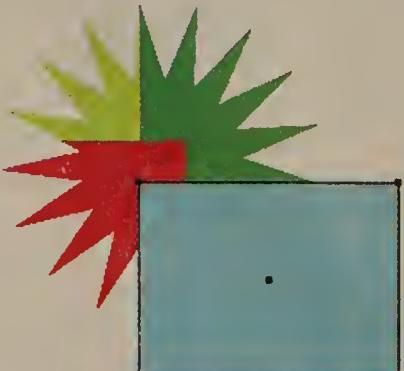
48. INSERTING OBJECTS INTO A MASK

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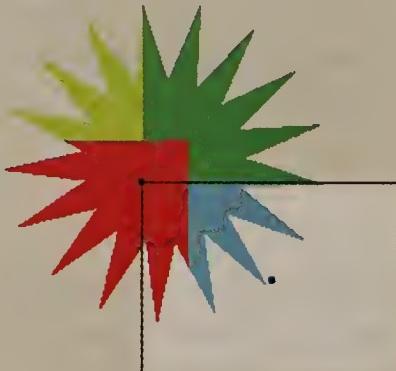
STEP 2

After cutting the new object to the Clipboard, select an object within the mask.



STEP 1

Position the object where you wish to place it within the mask.



STEP 3

Choose Paste In Back to place the new object within the masking group.

With this feature on, you don't have to choose a layer from the Layers palette; clicking with the Move tool (or ⌘-clicking with some other tool) on an element in the image itself automatically takes you to the layer containing that element—assuming the layer is set to at least 50 percent opacity. Furthermore, shift-clicking links whatever layer you click on with the active layer, so if you grab and move any of the linked layers, all of them move. If you hold down the control key and click the mouse, you can choose from a pop-up list of all the layers under your cursor.—LD and JD

49. ADDING A SPOT-COLOR CHANNEL

Photoshop 5 now supports spot-color overlays, letting you place the separation in a separate channel. You can create a spot-color channel by holding down the ⌘ key while clicking on the little page icon at the bottom of the Channels palette. Click on the Color swatch and then on the Custom button to select a Pantone ink or other predefined color.—DM

50. WHEN HISTORY CAN'T BE REPEATED

In Photoshop 5, everything you do is temporarily saved as a "state" in the History palette. However, if you change the dimensions or physical orientation of the document—such as by using the Rotate Canvas, Image Size, or Canvas Size commands—you won't be able to paint with previous states using the new history brush. So it's best to perform such changes before you start working with the History palette.—DB and NM

51. PAINTING BACK THE HANDS OF TIME

Although you can use Photoshop 5's history brush to paint back previous History states of your image, it can be a tedious process, especially with large image regions. Fortunately, there's an easier way: choosing the Fill With History option of the Fill command replaces any selection (or, if no selection is defined, the entire image) with the History state you specify.—DB and NM

52. DUELING SHADOWS

Photoshop 5's layer effects offer an easy way to produce two different kinds of shadows. To create and offset the angled shadow you get from a directional spotlight, use the

Drop Shadow or Inner Shadow effect. To make the diffused "pool of darkness" shadow thrown by overhead lighting, apply the Outer Glow in black or another dark color with the Mode set to Multiply.—LD and JD

53. TRANSFORMING PATHS

Before Photoshop 5, it was sometimes a toss-up whether to import a simple Adobe Illustrator graphic as paths or as pixels. Pasting as paths took up very little memory, and you could do things like stroke the paths with painting tools. But placed as a layer of its own, the artwork could be scaled, skewed, or otherwise distorted before rasterizing—transformations that couldn't be done to paths. Since Photoshop 5's Transform and Free Transform commands now work on paths, it makes sense to bring in simple Illustrator artwork as paths by pasting it into Photoshop with the Paste As Paths option selected.—LD and JD

54. JUST DRAG THOSE SHADOWS

In Photoshop 5, when you use the layer effects' Drop Shadow and Inner Shadow commands, you don't have to enter numbers in the Effects dialog box. Just move the cursor into the working window and drag the shadow where you want it to go. The Angle and Distance settings in the dialog box will automatically reflect what you've done. If you check the Use Global Angle option in the Effects dialog box, then dragging the shadow will change the angle of all the bevel, emboss, and other shadow effects as well.—LD and JD

55. EASY MEASURING

To measure the angle of crooked scans and photos in Photoshop, you'd typically set the line tool to a weight of 0 and then draw an invisible line, noting its angle in the Info palette. Depending on the direction of your drag, you might need to subtract 180 degrees or invert the value to straighten the image. But now Photoshop 5's measure tool does those calculations for you. After drawing a measure line and dragging its endpoints to adjust it, choose Numeric from the Transform submenu. The angle appears in the Rotate option box, automatically converted to its complimentary value between 45 and -45 degrees.—DM

56. UNCOVER WRAP PATHS

To find out whether the image you're importing into QuarkXPress has an alpha channel or an embedded path that can be used as a text-wrap, look at the Information section of the Runaround or Clipping pane. It indicates any alpha channels or embedded paths.—GG

57. NO MATH NEEDED

For fractional dimensions, don't pull out your calculator—QuarkXPress 4.0 can do the math for you. For example, if you want a page width of $7\frac{1}{8}$ inches, enter $7+7/8$, rather than 7.875. Note the plus sign: It's essential. Quark reads $7\frac{1}{8}$ as $77/8$, or 9.625.—GG

58. UNEVEN TEXT Insets

If you press the $\#$ key while resizing a text box in QuarkXPress 4.0, the text inset is resized along with the rest of the box. You can use this trick to create a box whose horizontal text inset is greater than its vertical text inset.—GG

59. CHANGE ALL NODES

In QuarkXPress 4.0, you can change all segments or points in a curve by double-clicking on the curve and then choosing the new point or segment type in the Measurements palette. The entire curve will be modified accordingly.—GG

60. WEB-SAFE COLORS

When creating Web-bound QuarkXPress documents, be sure to create colors whose hex values are composed only of 00, 33, 66, 99, CC, and FF. Better yet, use Apple's HTML picker with the Snap To Web Color option checked. Other values may not display properly in some Web browsers.—GG

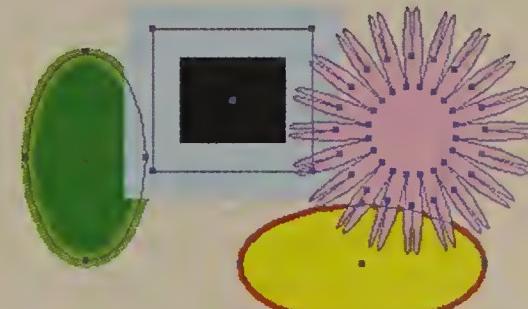
61. REPEAT APPENDS

In QuarkXPress 4.0, you can import from several documents by clicking on the Append button after importing styles from a document; this action reinvokes the Append Style Sheets dialog box. Repeat the import for each document.—GG

62. CHANGING ONLY SOME STYLES

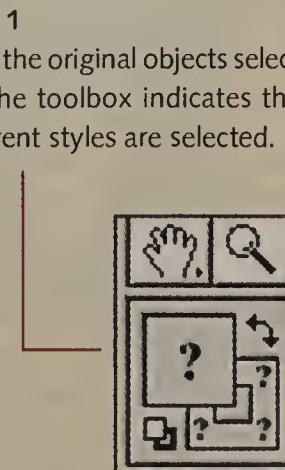
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HERE'S HOW TO EDIT SELECTIVE characteristics on multiple selected objects in Adobe Illustrator. Using palettes, you can set one specific style for all selected objects without affecting any other characteristics.—SS



STEP 2

The selected objects remain unchanged until you designate new settings.



STEP 3

Entering a new stroke weight of 1 point affects only the stroked objects and leaves the (unstroked) pink object unchanged.



63. ROTATING AROUND AN OBJECT'S CENTER

Ordinarily, Adobe Page-Maker 6.5's Rotate tool rotates objects around the point at which you start dragging the tool. To rotate the object around its geometric center point, hold down the control key as you drag the tool. Note that if you've selected a series of objects, holding down the control key makes them rotate around their common center point, not their individual centers. To rotate a number of objects around their individual center points, run the script Transform Each Object (you'll find it in the Transform folder inside the Element folder in the Scripts palette). You can also use this script to skew, resize, and reflect objects.—OMK

64. ADJUSTING LAYOUTS

Despite what you might think, Page-Maker can resize and move objects in a layout in response to changes you've made to a publication's column guides—just turn on the Adjust Layout option in the Column Guides dialog box. To tell Page-Maker to adjust a layout when you apply a new master page, turn on the Adjust Layout option on the Master Pages palette's pop-up menu before you apply the master page (or turn on the Adjust Layout option in the Master Page Options dialog box when you create or edit the master page). You can also use Adjust Layout to automate layout changes based on altered page sizes (from letter to A4, for example). You can control which objects are moved or resized, using the Layout Adjustment Preferences dialog box (choose Layout Adjustment from the Preferences submenu of the File menu).—OMK

66. PRINTER STYLES SHORTCUT

Page-Maker's printer styles give you an easy way of saving and applying different printing settings—you can create one printer style for printing composite-proof pages on your local laser printer, another for printing color-proof pages on a color printer, and still another for printing final pages on an imagesetter at your service bureau. Make the changes you want in the various Print dialog boxes, and then hold down the $\#$ key. Page-Maker changes the Print button to the Style button. Click on the Style button, enter a name for your new printer style in the Name Printer Style dialog box, and press return.—OMK

67. RESIZING GROUPED TEXT

In Page-Maker, resizing a group containing text blocks doesn't change the size of the type in the text blocks—only the size of the text blocks themselves. To change the size of the type inside a group as you resize the group, run the Resize Group script (it's in the Group folder inside the Element folder in the Scripts palette), which lets you enter a scaling percentage.—OMK

68. SELECTING THROUGH OBJECTS

Want to select an object in a Page-Maker document that's behind another object or inside a stack of objects? There's no need to drag objects out of the way. Hold down the $\#$ key and click on the object that's on top of the object you want to select. Click again, and Page-Maker selects the next object in the stack. Continue clicking until you've selected the object you want. This trick also works when you want to select "through" an inline graphic to select a text

65. LINKING AND UNLINKING FRAMES

To create a series of linked text frames in Page-Maker, hold down the $\#$ key as you draw the frames. Each new frame you create will be linked to the frame you drew before it. To *unlink* a frame in a series of linked frames, hold down $\#$ -shift as you click on one of the frame's windowshade handles.—OMK

block, or when you want to select a graphic that you've placed inside a frame.—OMK

69. DRAG-AND-DROP FILLS

To apply a radial fill to a path in Macromedia FreeHand versions 7 and 8, hold down the option key as you drop a color swatch inside a path. FreeHand positions the center of the radial fill at the point at which you dropped the color swatch. (To reset the center of a radial fill to the center point of a path, hold down shift as you click on the Locate Center control in the Fill Inspector.) To apply a graduated fill to a path, hold down the control key as you drop a color swatch inside a path. To apply a basic fill, hold down the shift key instead.—OMK

70. END-O-MATIC

Hate adjusting Bézier control handles to change the curves in a FreeHand path? Use the pointer tool to select a path, and then hold down option and drag the line segment you want to bend. As you drag, FreeHand changes the curve of the line segment—you never have to touch a control handle.—OMK

71. GETTING BLENDS OFF A PATH

What if, after you've joined a blend to a path in FreeHand, you want to get the objects in the blend off the path but leave each object in the same position as it occupies on the path? Just ungroup. FreeHand drops the objects onto the page in exactly the same positions they occupied on the path.—OMK

72. FROM POINT TO PATH

What can you do when you've selected a point in FreeHand but want to select the entire path? Press ` (the grave accent key; it's to the left of the number 1 on most keyboards), and FreeHand will select the path. This technique also works in other situations: When you've subselected an object inside a group and then want to select the group, press `. When you've subselected a single path inside a composite path, press ` to select the entire composite path.—OMK

73. EASY PALETTE NAVIGATION

It can often be a long way from the cursor's position to a field in one of FreeHand's floating palettes. Press $\#`$ (grave

accent) as many times as it takes to jump through the text edit fields in the palettes until you've highlighted the field you want to edit. This is especially handy when setting type, as you don't have to take your hand off the keyboard to use the mouse.—OMK

74. QUICK ACCESS TO LOCKED GUIDES

In Adobe Illustrator 7, with AI 6 Tool Shortcuts enabled under General Preferences, hold down the shift and control keys and click-drag on a guide to move it. Shift-control-double-click to turn the guide into a selected object that can be deleted.—ss

75. ENHANCE TYPE SELECTING

By default, Illustrator 7 activates two new options that affect type: Type Area Select and Anti-Alias Type. Type Area Select allows you to click anywhere on a text block to select it; unfortunately, this may

make it difficult to select nearby objects. You can turn it off in the Keyboard Increments section of the Preferences dialog box.—ss

76. KEEPING BLENDS GROUPED

You can take Illustrator's ability to automatically group blended objects a step further. To group the blended objects with the two objects that initiated the blend, group *before* you create the blend. You can then use the selection tool to reselect the entire group or the direct-selection tool to edit objects within a blend; click twice with the group-selection tool on an object within the blend to select only the blended objects.—ss

77. GET BACK THOSE ILLUSTRATOR 6 SHORTCUTS

In Illustrator 7's General Preferences, enable AI 6 Tool Shortcuts to restore both control-key access to Convert Direction

with direct select and Add/Delete Points with the pen tool, and one-handed access to Lock/Hide functions. These new shortcuts do differ slightly from the originals: Lock (⌘-2), Unlock (⌘-option-2), Hide (⌘-3), and Show (⌘-option-3).—ss

WEB AND E-MAIL

78. OPEN NEW WINDOWS WHILE BROWSING

Often when reading a Web page, you want to follow several links, but you also want to finish reading the current page. If you open those links in new windows, they'll load while you continue to read. In Microsoft Internet Explorer, just ⌘-click on a link. In Netscape Navigator, click and hold or control-click on a link and then choose New Window With This Link from the menu that pops up.—ACE

79. BETTER GRAY-SCALE VIA CHANNEL MIXING

create
GRAPHICS

WHEN ADOBE PHOTOSHOP CONVERTS COLOR images to gray-scale mode, a fixed internal equation specifies the mix of red, green, and blue to produce a monochromatic image.

Photoshop 5.0's new Channel Mixer (with the Monochrome option checked in the Channel Mixer dialog box) lets you define exactly how much red, green, and blue to mix together to create a custom gray-scale image. Adding more than 100 percent of a channel to the Channel Mixer increases the brightness of the resulting gray-scale image as if the Add application mode were being used. Setting the Channel Mixer's sliders below 0 percent will reduce brightness as if the Subtract application mode were being used. Going to either extreme will yield some very interesting special effects; for realistic gray-scale derivation, we recommend a lot of green, some red, and very little (if any) blue.—DB and NM



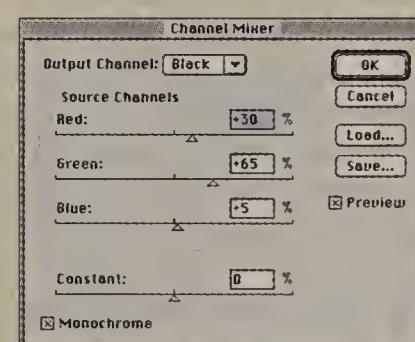
STEP 1

An RGB color image before being converted to gray-scale mode in Photoshop 5.



STEP 2

Subtle details are lost when too-high percentages of each channel (here, Red, 70; Green, 40; Blue, 50) add up to more than 100 percent.



STEP 3

In the Channel Mixer dialog box, you can set just the right combination of Red, Blue, and Green.



STEP 4

Mixing a much smaller amount of red, a majority of green, and just a touch of blue produces a well-balanced gray-scale image.



80. SAVING GRAPHICS FROM NAVIGATOR

If you see a Web-page graphic you want to download and you're using **Navigator**, just drag the graphic to your desktop to download it.—ACE

81. QUICK SEARCH OF THE NET

You don't need to go to a search page to search for something on the Internet—you can do it right from your browser's address field. In either **Navigator 4.0** or **Internet Explorer 4.0**, type a question mark (?), a space, and the search term. If you're searching in **Navigator** for multiple terms, you can omit the question mark, while in **Explorer**, you'd substitute **go** for the question mark. For example, typing **buffy vampire** in **Navigator** or **go buffy vampire** in **Explorer** nets you a list of sites devoted to the TV series *Buffy the Vampire Slayer*.—ACE and JS

82. FINDING FORGOTTEN URLs

Can't remember the address of that Web site you visited last week? In **Internet Explorer 4.0** or later, you can search for text in the name or address of Web pages you've bookmarked or recently visited. After opening the History or Favorites window, check the Select All Items That Match Criteria option in the Find dialog box to highlight all items that match your search terms. It's easier to find the item you want when you have to scan only selected items.—ACE

83. BOOKMARKS ON A PAGE

Using any program that can save as HTML, you can create an HTML page containing a list of your favorite links. Set this page as your browser's default home

page. In **Navigator**, choose Open Page from the File menu and open your HTML file. Then choose Preferences, choose Navigator, select the Home Page radio button, and click on the Use Current Page button. In **Internet Explorer**, choose Open File and open your HTML file, select and copy the entire contents of the address box, choose Preferences, click on Home/Search, and paste into the Address window in the Home Page box.—JS

84. BACKWARD SITE HOPPING

In **Navigator**, click on the Back button while holding down the option key to go back to the previous *site* you visited, rather than the previous page.—JS

85. GOOD-BYE TO CLICK-AND-HOLD

In both **Navigator 4.0** and **Internet Explorer 4.0**, you can control-click to immediately see the program's contextual menus, rather than having to use the old click-and-hold method.—JS

86. STEP UP TO THE FAVORITES BAR

Don't want to go to the Favorites menu for your frequently accessed Web pages in **Internet Explorer 4.0**? Just add them to the Favorites bar, which appears in the browser window, instead. Open the Favorites window, and drag bookmarks into the Toolbar Favorites folder (feel free to remove those that are already there). Keep the names short and you'll be able to fit more in.—ACE

87. ELECTRONIC REMINDERS

Use Qualcomm's **Eudora** to send e-mail reminders to yourself and others by option-clicking on the Queue button in the message (or on Send, if you send messages immediately). In the Change Queuing dialog box, set a date (slightly in advance of the event you want to remember) and a time for the message to be sent and then click on OK. **Eudora 4.0** will send the message at the date and time you set; version 3.X sends it the first time it sends mail after the date and time you set.—ACE

88. FIND THAT FILTER

After you've created numerous filters in **Eudora Pro**, scrolling through the list to find a specific one to edit or delete can be tedious. But open the Find window just after making **Eudora Pro**'s Filters window the frontmost window, and you can use Find to seek out the filter you want.—ACE

89. GET RID OF UNUSED FILTERS

To see when a **Eudora** filter was last used, select one and look in the gray area between the Match and Actions sections to see the last time **Eudora** applied that filter to a message. **Eudora Pro 4.0** also puts a dinosaur icon next to filters that haven't been used for 30 days or more, which you can remove for faster filtering.—ACE

90. SELECT SIMILAR MESSAGES

A fast way to select similar messages in a **Eudora Pro** mailbox is to option-click on the cell that's the same in all the messages. For instance, option-clicking on someone's name in the Who column causes **Eudora** to select and group together all the messages from that person.—ACE

91. EUDORA'S HIDDEN GLOSSARY

Hidden within **Eudora**'s Address Book is a feature similar to a word processor's glossary that lets you store and retrieve commonly used words and phrases. You can enter almost any text you want as the address of a nickname. Then, in a message, type the nickname, hold down the option key, and choose Finish & Expand Address Book Entry from the Edit menu (⌘-option-, [comma]). Leave empty the Domain To Add To Unqualified Names field in the Sending Mail settings panel, or **Eudora** will add that domain to the first word of your glossary entry, as in, "What@tidbits.com about this?"—ACE

92. STYLE-FREE EUDORA

If you're sending a message containing styled text with **Eudora Pro** to friends who can't see styled text, select your entire message and press ⌘-option-T to convert the message back to plain text. You can also use ⌘-shift-' (apostrophe) to paste quoted text with the styles automatically stripped out.—JS

93. ONE-STEP ENCLOSURES

To attach a file to an outgoing e-mail message in **Claris Emailer**, don't bother messing with the Enclosures paper-clip icon. Instead, drag an icon from the Finder desktop into any gray area of Emailer's interface—the border around your message, for example.—DP

94. QUICK EMAILER ADDRESSING

If your Emailer Address Book is filled with names but you e-mail only a handful of recipients regularly, edit their names in the Address Book so that the names begin with digits. Turn *Bill Clinton* into *2 Bill Clinton*, for example. When it comes time to send a message to Bill Clinton, you won't have to type **Bill Cl** (which you'd have to do to distinguish that name from all the other Bills in your Address Book); instead, just type **2** and press tab to fill in the complete address.—DP

95. PAGEMILL COLOR PANEL

When designing a Web site in **Adobe PageMill**, use the Color Panel to apply a uniform set of colors to your site. To access the panel, choose Show Color Panel from the View menu or press **⌘-'** (apostrophe). To customize a color, double-click on it. To apply a color, drag it off the palette to an item on the page.—TJE

96. A BARE-BONES TOOL PALETTE

Pare down the HTML Tools palette in Bare Bones Software's **BBEdit** to a more manageable size by removing commands you seldom use. To do so, click on the pop-up arrow at the upper left of the palette and choose Configure Buttons. **⌘-click** on items to remove them; click on items to add them. To occasionally invoke commands you've removed from the palette, use the Tools menu.—TJE

97. AVOID BBEDIT REPETITION

If you frequently type the same HTML tag sequences in **BBEdit**, use the HTML Custom Markup command to do the work for you. For example, if you often link to URLs that you bring into BBEdit by copying and pasting, the custom markup **...** links selected text in BBEdit to a URL that you've pasted into the Clipboard. (Think of **\c** as standing for "Clipboard.") The ellipsis indicates where

the selected text goes in the HTML sequence (press option-; [semicolon] to insert an ellipsis).—TJE

98. ENTER ONCE, REPEAT INDEFINITELY

You don't have to keep entering an element (such as contact information or a navigation bar) that repeats on each Web page you create in **BBEdit**. Instead, enter its HTML code in an include file and store that file in the template folder set in BBEdit's HTML Preferences. Say you name the include file **Contact**; you can make a placeholder for it in another document (or many other documents) by using HTML comment tags like the following:

```
<!-- #include "Contact" -->  
<!-- end include -->
```

Use the HTML Tools Update command to insert a copy of the include in the placeholder. If you edit the include, broadcast the changes to its placeholders with the HTML Tools Update command.—TJE

99. PUT HYPERLINKS IN THEIR PLACE

In any Web publishing program, you can program a hyperlink to automatically open in a new window by setting the link's *target* (even if you're not using frames) to **_new**. (If you're using a text

editor, the format is **<a href="<<link>>" target="_new">**).—JS

100. DEBUGGING HTML FORM DATA

When you're designing an **HTML** form, be sure to set the form's *method* variable to **get**. Then, when you submit the form, your browser's URL window shows you all the data your form is sending to the Web server. When you're done debugging, set the method to **post**.—JS

101. A SAFER NETSCAPE INSTALL

Certain programs, including **Netscape Communicator**, automatically install the **ObjectSupportLib** extension, which can conflict with Mac OS 8. To keep that extension from invading your system, open the **Communicator Module** folder (in the **Communicator** folder), double-click on the **Communicator Module** installer, and select **Custom Install**. To prevent installing **ObjectSupportLib**, *don't* check the box next to **AppleScript Object Support Library**.—CB **m**

Macworld Senior Associate Editor CATHY ABES collected and edited all 101 of these tips. Need more to satisfy your tip appetite? For a steady supply, subscribe to Macworld's Daily Tip mailing list at www.macworld.com/newsletters/.

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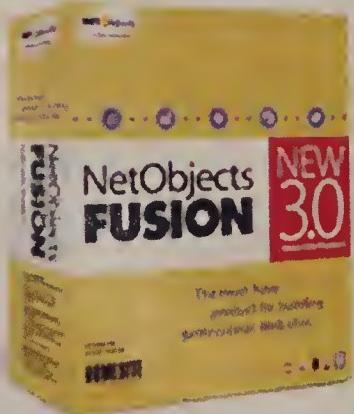
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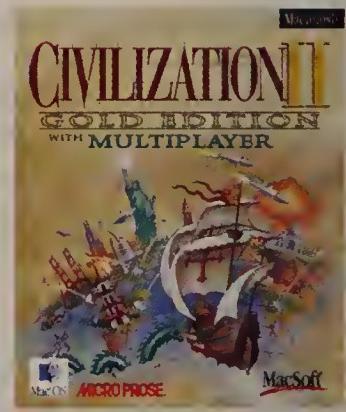


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APPLE'S MULTIMEDIA ALL-STAR
IS IN PEAK FORM WITH VERSION 3

QuickTime Goes Pro

by Christopher Breen

QuickTime used to be simply the means to a movie, but now it's a lot more than that. Apple's multimedia technology has become the star player in the company's lineup and is potentially Apple's most successful cross-platform product ever.

QuickTime 3, released for the Macintosh and Windows this spring, is the strongest version yet. Its strong new editing features and wide support for different file formats have transformed it into a true all-in-one cross-platform media tool.

This is big news for the people who create digital media and those who view it. The new QuickTime allows users on both platforms to see audio, video, QuickTime VR (virtual reality), and graphics without having to load up on a plethora of browser plug-ins. As a result, it's got a fighting chance to rule the multimedia roost on both the desktop and the Web.

QuickTime's new compression schemes also make the application even more effective at delivering high-quality audio and video in small—more Internet-friendly—packages. It can even stream media (including QuickTime VR) over the Web.

When you download QuickTime 3 from Apple's Web site (www.apple.com/quicktime/) you get all of its elements: a new Internet-browser plug-in—QuickTime Plug-in 2.0—as well as a collection of system software and stand-alone utilities, such as MoviePlayer 3.0 and PictureViewer 3.0. With these tools in hand, you can view just about any media file you encounter. If you want to actually do

anything with QuickTime 3—from saving or scaling a movie to employing special effects—you'll have to pay \$30 to unlock all of its features. This activated version is called QuickTime 3 Pro. (For more details about the differences, see the sidebar "You Get What You Pay For.") In this tour,

we'll hit the highlights of the best that QuickTime 3 Pro has to offer and see why it's become one of Apple's hottest players on both the desktop and the Web.

Getting in the Standards Game

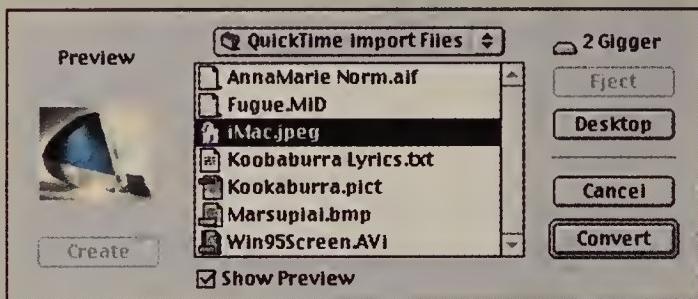
Make no mistake, Apple wants QuickTime to be *the* multimedia standard for desktop computing and the Web. If Apple hopes to fight the good fight in the cross-platform-standards game, QuickTime must become a one-stop-shopping technology. It must be able to deal with just about any video, audio, or graphics file it happens upon, regardless of platform or application. QuickTime takes a significant step toward that goal with its expanded set of supported file types.



Key Plays: A Visual QuickTime Tour

THERE'S A LOT GOING ON BENEATH THE SURFACE OF QUICKTIME 3.

Once you purchase QuickTime 3 Pro, you can access the bulk of QuickTime's most important features with the Pro-activated MoviePlayer 3.0. Here's where to find some of the best that QuickTime 3 Pro has to offer.

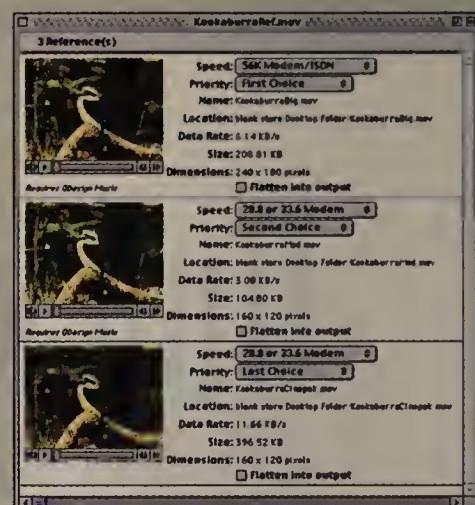


Importance of Import The Import command, under MoviePlayer's File menu, is the key to bringing files of various types into your QuickTime movies. Among other types, this includes AVI, OpenDML, DVCam, AIFF, WAV, AU, Sound Designer II, Adobe Photoshop, SGI, MacPaint, PNG, FLC/FLI, PICS, 3DMF, and even Karaoke MIDI. You can also directly capture video, timecode, sound, DVCam, MIDI, and text.

Lest you think QuickTime and MoviePlayer are the ultimate file-conversion solution, be warned that MoviePlayer's export capabilities are far more limited. Currently you can export QuickTime files as AIFF, WAV, MIDI, QuickDraw, Picture, Text, and DVCam.



Fancy Effects From the Movie Settings dialog box, you can apply QuickTime 3 Pro's built-in filters to your video. But you can't fully access QuickTime's video transitions (see above) except through QuickTime 3-savvy video-authoring applications. If you want to experiment with basic transitions, download a copy of Apple's free MakeEffect-Movie utility (see "Bookmarks").



Custom Streaming After adding filters and transitions to your movie, you may want to place it on your Web site. If you wish to demonstrate your QuickTime prowess, you'll use various levels of compression and create copies of different sizes so that the movie will be ready to stream comfortably over the Web, regardless of your visitors' connection speed. Once you've created such copies, use Apple's MakeRef-Movie utility (see "Bookmarks") to make a reference movie that checks visitors' QuickTime settings and serves up the version they need.

The Sights QuickTime now offers a good way to view video and graphics files of all kinds, whether they come from a Mac or a PC. The files can be in Microsoft's AVI format, the PC video standard; Open Media Framework (OMF), the PC-friendly extension of the AVI standard; OpenDML, a high-end video standard created by Avid; and even DVCam, a format used by digital-video cameras.

One area where QuickTime's cross-platform video support falls short, however, is with MPEG-1, a popular Web-video format that allows you to create highly compressed movies. QuickTime 3 for the Mac fully supports MPEG-1, thanks to the QuickTime MPEG Extension, but the same is not true of QuickTime 3 for Windows. According to Apple, it should be by the end of the year.

There's little such bad news, however, when it comes to other graphics-file formats. Version 3 adds support for the Windows graphics standard Bitmap (BMP), and for Flic, an animation standard popular on Windows. Graphics pros will also be pleased to

know that QuickTime 3 can display another significant kind of graphics file as well—Adobe Photoshop files, complete with their accompanying layers and alpha channels.

The Sounds Seeing may be believing, but it's nice to hear what your videos and other media have to say, too. QuickTime 3 builds on a solid foundation of support for sound formats such as AIFF/AIFC, WAV, AU, and MPEG Layer 2. Multimedia professionals who use audio samplers and high-end audio-editing applications will be pleased that the new QuickTime adds support for Sound Designer II files, a file format created by Digidesign and commonly used by professional audio-editing applications.

QuickTime has also beefed up its support for MIDI sound—the music format used for creating and playing the synthesized music files popular in games. Previous versions of QuickTime included the limited—and nearly unlistenable—QuickTime Musical Instruments sound set. Your ears will be relieved to know that this time, Apple has licensed a vastly superior

set of General MIDI sounds from Roland.

As with video, when it comes to sound, there is one hole in QuickTime's cross-platform support: QuickTime 3 for Windows does not support the popular audio standard MPEG Layer 2.

Squeeze Play

To be the standard for multimedia on the Web, a product has to offer more than just the ability to display files of all sorts. It also has to offer the ability to *deliver* high-quality media files and do it quickly. The key? Advanced compression schemes.

QuickTime 3 offers significantly beefed-up compression options in the guise of two new codecs (*codec* stands for compressor/decompressor): the Sorenson Video codec for video, and the QDesign Music Encoder for audio. Each of these codecs makes it possible to deliver media faster than with traditional compression technologies such as the Cinepak video codec. (This is helpful in those times when you actually care to have people *view* the work you've slaved over.)



Mighty Sprites With QuickTime 3's sprite track, your movies can contain interactive animation. In the illustration above, I caused the ripple by clicking on the bottom of the fishbowl. You can try this for yourself with the Fish Animation—one of Apple's QuickTime 3 samples—at www.apple.com/quicktime/samples/anim-graphics/fish.html (this URL is case-sensitive). Don't worry, clicking doesn't seem to bother the fish one bit.



Text Tracks Thanks to QuickTime's ability to assign alternate languages to different tracks, you can create custom subtitles and narration tracks to accompany your movies. To add text to a movie, simply string together some syllables in a word processor, copy the text to the Clipboard, choose any movie, hold down the option key, and choose Add from the Pro-activated MoviePlayer's Edit menu. That line of text will be displayed throughout, unless you add another line of text later in the movie.

Better Video Compression QuickTime 3 comes with the Basic Edition of the Sorenson Video codec. When you're saving a video, you can use this to adjust the number of frames per second, determine how often keyframes are written to the movie, and also set the amount of compression applied to the movie.

The Sorenson Video codec can produce files that boast quality superior to that of Cinepak files and that are about one-half the size. The trade-off is that the Sorenson Video codec compresses files far more slowly than Cinepak. Also, files with data rates above 100 Kbps play back smoothly only on G3 Macs (and high-powered Pentium II Windows PCs). You can purchase the \$499 Professional Edition with expanded compression capabilities from Sorenson (408/970-0696, www.s-vision.com).

Better Audio Compression QuickTime's new audio codec, the QDesign Music Encoder, allows QuickTime 3 Pro users to compress audio files with greater resulting quality than in previous versions of QuickTime. The QDesign Music

Encoder's compression options range from the severely smushed-and-distorted 8 Kbps to the reasonably compressed-and-pleasing-to-the-ear 48 Kbps. If you plan to employ higher compression rates, you'll want to look into QDesign's (604/688-1525, www.qdesign.com) \$395 QDesign Music Encoder Professional Edition.

Streaming Savvy

In older versions of QuickTime, you had to wait for a movie to download before you could view or listen to it. If your connection was slow—or the file big—this could truly be a trial. Now QuickTime movies can start playing *while* the movie downloads.

This is an exciting prospect for users on both sides of the stream. Visitors to a site no longer have to twiddle their thumbs while waiting for a file to download completely. In addition, because QuickTime doesn't require special server software to stream—unlike the popular Real Audio and Real Video, from competitor RealNetworks (www.real.com)—just about anyone can provide stream-

ing media from an existing Web site.

Another unique aspect of QuickTime 3's streaming technology is its QuickTime VR track. You can begin panning around the scene without waiting for the entire file to download.

Live Limitations As of press time, QuickTime 3 is incapable of *live* streaming—meaning that unlike RealNetworks' Real Audio and Real Video, QuickTime can't broadcast events as they occur. However, the capability appears to be on the way. During the keynote speech at the recent Worldwide Developer's Conference, Apple demonstrated live streaming via QuickTime. Apple is still keeping the details of this "QuickTime Live" technology under wraps, but sources say that live QuickTime streaming will arrive in late 1998.

Practical Streaming Pointers As a Web surfer, you'll be interested to know that there's one simple way to make QuickTime's streaming features work better for you. Once you've traded up to QuickTime 3 Pro, make sure to indicate your Internet-connection speed in the QuickTime Settings control panel and within QuickTime Plug-in.

When content creators prepare QuickTime 3 media for the Web, they can make multiple copies of movies that are optimized for specific connection speeds—28.8 Kbps, ISDN, and T1, for example—and then create a reference movie that points to these copies. (For more details, see "Optimize Web Video for QuickTime 3," *Create*, August 1998.) When you click on a link to download a movie, behind the scenes the site queries your copy of QuickTime 3 to see which connection speed you've selected. Then it streams the recommended movie. If your settings are too ambitious—56 Kbps when you have a 28.8-Kbps modem, for example—you'll see the 56-Kbps movie, but it will take a long time to download.

Breaking Away from the Pack

QuickTime 3 is truly distinguished from its rivals by its editing tools. Although they're limited, these video filters and transitions offer developers of entry-level video editors a welcome set of free effects to incorporate into their products. Some tools that incorporate QuickTime effects will be out by the time you read this. They include Media Cleaner Pro 3.0, from Terran Interactive (408/356-7373, www.terran.com), and Electrifier Pro,

You Get What You Pay For

FOR THE FIRST TIME, QUICKTIME has been split into two different products: the free QuickTime 3 and the \$30 QuickTime 3 Pro. If you're wondering what QuickTime 3 Pro has to offer over the regular version of QuickTime 3, we've got the answer: everything.

Free Means Meager

Many users of previous versions of QuickTime have been dismayed to discover that every worthwhile editing function they've come to expect from QuickTime is missing from the free version of QuickTime 3. Versions of MoviePlayer 3.0 and QuickTime Plug-in 2.0 that haven't been Pro-activated still play QuickTime movies—even movies that use QuickTime's new codecs and tracks. But

that's pretty much it.

The basic version of MoviePlayer 3.0 contains no Import, Export, or Save As commands—movie creation is definitely out. Nor can you turn individual tracks of a QuickTime movie on or off—the Extract Track, Delete Track, and Enable Track commands are history. Want to loop your movies or show them at full-screen size? Forget it. At least, unless you pony up for QuickTime 3 Pro. And unless you're willing to rummage around in your browser's cache folder to retrieve movies before your browser deletes them, you can't save QuickTime movies found on the Web—



Professional Perks The free version of QuickTime 3 and accompanying QuickTime Plug-in 2.0 don't allow you to save QuickTime movies you find on the Web. If you want to see this pull-down menu in your Web-based movies, buy QuickTime 3 Pro.

there's no Save As QuickTime Movie option in the basic version of QuickTime Plug-in 2.0.

Hold On to the Oldies

If you still have MoviePlayer 2.5.1 and its Goodies and Authoring Extras plug-ins, hold on to them. This older version still lets you take advantage of many of QuickTime 3's professional features—the Save As, Import, and Export commands are still available, as are

looping and alternate screen sizes. You'll also have access to all of QuickTime's new codecs. You won't, however, be able to rotate or skew your video tracks as you can with the Pro-activated MoviePlayer 3.0. Not surprisingly, Apple has ceased distribution of QuickTime 2.5 and MoviePlayer 2.5.1 through its Web site and its licensed developers.

Commercial Restraint

Apple has changed one of the more odious aspects of QuickTime 3—the advertisement encouraging you to upgrade to QuickTime 3 Pro. If you hadn't paid your \$30 yet, this ad appeared as MoviePlayer 3.0 was launched each day. The latest version of QuickTime 3 should play the ad for QuickTime 3 Pro only once. The limitations you face if you don't pay to unlock QuickTime 3's full abilities should be advertisement enough.

from Lari Software (919/968-0701, www.larisoftware.com).

Fancy Effects Footwork The filters include effects such as blur, tint, edge detection, emboss, sharpen, and film noise (a filter that adds dust and scratch artifacts to a movie). They're also adjustable—for example, when you use the film-noise filter, you can change the size of the scratches and dust particles. To try them in the Pro-activated MoviePlayer 3.0 (not all of MoviePlayer 3.0's capabilities are turned on until you upgrade to QuickTime 3 Pro), export a file as a QuickTime movie, press the Options button in the Save dialog box, click on the Filter button in the resulting Movie Settings dialog box, and choose an effect.

Alas, QuickTime 3 transitions are not accessible from the Pro-activated MoviePlayer 3.0. However, you can see a demonstration of QuickTime's transitions by downloading Apple's free EffectsTeaser application (see "Bookmarks"), which demonstrates such transitions as explode, implode, iris, ripple, and a variety of wipes. If you'd like to see how a particular QuickTime transition will look in one of your movies, grab a copy of Apple's MakeEffectMovie utility. This utility layers one movie atop another and then applies the transition you've chosen to the

two movie layers. For example, one layer can fade or swirl into the other.

It's about QuickTime

QuickTime 3 is rich with features both large and small (see the sidebar "Key Plays: A Visual QuickTime Tour"). There is still some work to be done, however, and much of it concerns cross-platform parity.

Let's face it—if Windows users don't adopt it, QuickTime will be another wonderful Apple technology with unrealized potential, and without MPEG support under Windows, QuickTime can't be the one-format-fits-all technology Apple envisions. Omissions like these aren't holding back QuickTime right now, however. The International Standards Organization (ISO) has adopted a proposal by Apple, IBM, Netscape, Oracle, Silicon Graphics, and Sun Microsystems to use the QuickTime File Format as the basis of the upcoming MPEG-4 standard.

The Last Word

QuickTime 3 is a remarkable piece of technology—Apple technology that, for the first time, has a chance to become as popular on Windows PCs as it is on the Macintosh.

Since its simple beginnings as a movie player for the Mac, QuickTime has gained ground—from addressing mul-

tiple file types to streaming video, sound, and virtual reality. And best of all, it can do almost all of it across platforms. With version 3 Pro, Apple has in QuickTime a major multimedia score. **m**

Contributing Editor CHRISTOPHER BREEN has written about Macs and multimedia since the early years of the Reagan administration.

Bookmarks

MakeRefMovie This utility from Apple creates a reference movie that points to versions of your QuickTime movie optimized for different bandwidths.

<ftp://ftp.apple.com/Quicktime/developers/makerefmovie.sea.hqx>

EffectsTeaser Even if you decide not to upgrade to QuickTime 3 Pro, this Apple application will let you preview its transitions.

<ftp://ftp.apple.com/Quicktime/developers/effectsteaser.sea.hqx>

MakeEffectMovie With this utility from Apple, see how a QuickTime 3 transition would look in one of your movies.

<ftp://ftp.apple.com/Quicktime/developers/makeeffectmovie.sea.hqx>

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Make Your Own CDs in a Flash with These New
Recordable and Rewritable CD Drives

Burn, Baby, Burn

by Stephan Somogyi

Macworld
LAB TEST

COMPACT DISCS WERE ONCE MEANT STRICTLY FOR PLAYBACK. ACTUALLY *creating* CDs was the province of the big software and record companies. But now all of us have the power to make our own CDs. CD-Recordable drives, or CD-Rs, allow you to create (or *burn*) both audio and data CDs with a minimum of trouble and expense. And an even newer technology called CD-Rewritable, or CD-RW, adds more versatility and flexibility to the compact-disc world.

Although CD-ROMs were once touted as the next big medium, they've evolved into something more akin to high-capacity, read-only floppy disks. Take Apple's new iMac—that colorful compact consumer computer has a CD-ROM drive and *no* floppy drive.

The appeal of CDs is clear: they're in many ways more rugged than the removable media used on drives from companies such as Iomega and SyQuest, they're cheaper than magneto-optical cartridges, and just about all computers (not to mention most stereos) can read them. By no means can CDs be considered speed demons, but their versatility, low cost, storage capacity, and physical robustness mark a significant space for them in the world of removable mass storage.

To give you a leg up on deciding which CD-writing drive is right for you, Macworld Lab tested 21 CD-R and CD-RW drives for compatibility, reliability, and performance (see the benchmark, "Feel the Burn: CD-R and CD-RW Drives Compared"). We also investi-

gated the compatibility problems caused by the new rewritable format.

One-Shot Wonders

With a trusty CD-R or CD-RW drive, some blank CD-R media, and the right software, you can create Mac-native CD-ROMs (even bootable ones) and ISO 9660 CD-ROMs—which are readable by computers running DOS, Windows, Unix, or the Mac OS. You can also create audio CDs that work in any standard CD player. A single, blank CD-R disc costs as little as \$2 and holds just as much data—up to 650MB—as any of the CD-ROMs you get when you buy software.

Slow Going While creating CDs isn't expensive, it can be time-consuming. You usually can't just pop in a blank disc and drag files onto it in the Finder, as you'd do with a floppy. Instead, you prepare the files that are intended for the

CD-R on a hard disk and then burn them to a disc, using an application such as Adaptec's Toast. Depending on how much data needs to be written and how fast the drive is, you might have to wait for more than an hour before the finished CD pops out of the drive. (Some of the drives we tested ship with Adaptec's DirectCD software, which actually *does* let you mount a blank CD in the Finder. Nevertheless, this approach has shortcomings. Every time the OS needs to update information on the disc, it has to write a whole new copy of the information—plus all sorts of invisible files and other unseen data—to the CD, wasting valuable space. You can't write over what's already been written.)

At the standard CD-audio data-transfer rate, one minute of CD audio takes one minute to write; this works out to approximately 150K per second, meaning that it would take 74 minutes

to fill a CD-ROM. The drives we tested are able to burn at speeds up to four times (or 4x) the standard rate, which means that a full CD can be burned in 18.5 minutes at the drives' top speed. Once a CD has been created, it can be played back at any speed.

The Coaster Curse But if something goes wrong while burning—usually caused by too cheap CD-R media or an interruption on the Mac that's controlling the burner—you'll wind up with a round gold or silver coaster instead of a usable disc. That's the one great shortcoming of CD-R. Unlike Iomega Zip disks or floppies, CD-R discs can be filled up only once, although some CD-R formats allow you to fill up a disc gradually over several sessions. But once you've written anything to a CD-R disc, it's there forever.

Typical CD-recording software helps reduce the risk of burning an unusable

Aspiring Writers: 21 CD-R and CD-RW Drives

Company	Product	Mouse Rating	List Price	Phone	Mechanism	Type
APS Technologies	CDR 4x8	3 1/2	\$500	816/483-1600	Panasonic CW-7502	CD-R
	EDITORS' CHOICE					
	CDRW Pro	4 1/2	\$600	816/483-1600	Yamaha CDW-4260	CD-RW
EZQuest	Anaboa Jaz 2GB/Y2x4x6	3 1/2	\$1,199	714/779-9040	Yamaha CDW-4260	CD-RW
	Boa Y-CRW 4x2x6	3 1/2	\$599	714/779-9040	Yamaha CDW-4260	CD-RW
La Cie	CDR 4x8x	3 1/2	\$479	503/844-4500	Panasonic CW-7502	CD-R
	CDR 4x12x	3 1/2	\$499	503/844-4500	Teac CD-R55S	CD-R
	EDITORS' CHOICE					
Mediastore	AVD 4x2x6 ReWritable	3 1/2	\$549	714/974-5551	Yamaha CDW-4260	CD-RW
	AVD 4x8	3 1/2	\$449	714/974-5551	Panasonic CW-7502	CD-R
	AVD 4x12	3 1/2	\$519	714/974-5551	Teac CD-R55S	CD-R
MicroNet	Master CD Plus 4x12	3 1/2	\$630	714/453-6000	Teac CD-R55S	CD-R
Optima Technology	CDWriter	3 1/2	\$799	714/476-0515	Yamaha CDW-4260	CD-RW
	DisKover 1300CDR	3 1/2	\$669	714/476-0515	Sony CDU-948S	CD-R
Pinnacle Micro	RCD 4x12 Mac	3 1/2	\$599	949/789-3000	Teac CD-R55S	CD-R
ProDirect	PowerStore 412 CDR	3 1/2	\$449	800/524-9952	Teac CD-R55S	CD-R
	PowerStore 4260 CDRW	3 1/2	\$559	800/524-9952	Yamaha CDW-4260	CD-RW
Smart & Friendly	CD-RW 426	3 1/2	\$699	818/772-8001	Yamaha CDW-4260	CD-RW
	CD SpeedWriter	3 1/2	\$549	818/772-8001	Teac CD-R55S	CD-R
Smart Storage Solutions	4x2x6YMX	3 1/2	\$589	800/473-0923	Yamaha CDW-4260	CD-RW
	4x8MMX	3 1/2	\$399	800/473-0923	Panasonic CW-7502	CD-R
	4x12PMX	3 1/2	\$579	800/473-0923	Plextor CD-R PX-R412C	CD-R
	4x12TMX	3 1/2	\$459	800/473-0923	Teac CD-R55S	CD-R

NA = not applicable.

CD by letting you create an image file of the CD on your local hard disk beforehand. This allows you to check that everything is just so before actually burning the data onto the real disc.

Another factor that can reduce the chance of burning a bad disc is the amount of cache RAM built into the CD writer. The more cache a drive has, the less likely it is that a hard disk or computer slowdown will cause a fatal interruption in the stream of data the CD-R drive is writing to the CD-R disc.

Rewriting History

A new class of drives has begun to make the pain of failed CD-writing sessions fade away. Roughly a year old, CD-RW technology is similar to CD-R, with one crucial difference: CD-RW discs can be written to over and over—up to 1,000 or so times, according to the media manu-

facturers. Even better, CD-RW drives aren't limited to writing CD-RW discs—they can also burn old-fashioned CD-R discs. In fact, all the CD-RW drives we tested were able to burn CD-R discs faster than CD-RW discs.

CD-RW drives, like their CD-R cousins, are slow when compared with other removable-media devices, such as Zip and Jaz drives. But CD-RW technology is an eminently useful backup tool when paired with Dantz Development's (www.dantz.com) Retrospect or Retrospect Express software (see *Reviews*, in this issue). Since CD-RW discs can be overwritten with new data, they're a more cost-effective means of backup than the write-once CD-R discs.

As with CD-R, you usually can't write to CD-RW discs by mounting one in the Finder and dragging files to it, unless you've got software such as DirectCD.

The Bad News about CD-RW

The many benefits of CD-RW over CD-R are evident. There are, however, several drawbacks that will make CD-R discs a valuable media format for some time to come.

Pricey Media The first drawback is cost, plain and simple. Currently, the average CD-RW disc costs ten times what a CD-R disc costs. If you're planning on rewriting that disc repeatedly, over time the investment will be worth it. But if you're writing to a large number of discs, the costs of CD-RW will add up.

Incompatibilities The biggest problem with CD-RW discs is that they won't work with most older CD players. (The features required to read all CDs, including CD-RW, are lumped together in a new standard known as Multi-Read. If you buy a CD-ROM drive or audio CD drive that's Multi-Read capable, that drive will be able to handle CD-RW discs.)

CD-ROM drives that are older than a year are unlikely to be able to read a CD-RW disc, since the final version of the Multi-Read specification isn't even a year old. So while being able to reuse CD-RW discs over and over again is quite convenient, you can't pass those discs to your friends unless they've got a Multi-Read capable drive. Using those discs on new systems shouldn't be a problem—the CD-ROM drive in a Power Mac G3 desktop system we used could read a CD-RW disc without problems, but the older drive in a Performa couldn't.

Real-World Tests The real test for compatibility, however, is consumer audio and video equipment. Since CD-RW technology is an obvious candidate for making audio CDs—play a disc until you're sick of it, and then write over it with some new tunes—we went to a local consumer-electronics store to see how many audio CD players would read our CD-RW audio disc. Adaptec's Toast software was helpful enough to warn us, when we set it up to burn an audio CD-RW disc, that most consumer players cannot read CD-RW audio. It wasn't kidding.

We tried our disc in several car CD players from various companies, ranging in price roughly from \$500 to \$1,000. Not a single one of these players recognized the CD-RW as a valid audio CD; some flashed error messages on their displays, while others uncereemoniously spat the disc back out.

Write Speed	Rewrite Speed	Read Speed	Cache	Comments
4x	NA	8x	1MB	Very slow with Retrospect 4.0; APS offers CharisMac Describe as an alternative to Toast.
4x	2x	6x	2MB	Good overall performance; firmware easy to upgrade.
4x	2x	6x	2MB	Included 2GB Jaz drive is nice but expensive.
4x	2x	6x	2MB	Good performer.
4x	NA	8x	1MB	Panasonic mechanism slow with Retrospect 4.0.
4x	NA	12x	1MB	Good performer; not compatible with Retrospect 4.0.
4x	2x	6x	2MB	Good overall performance; solid drive
4x	NA	8x	868K	Very slow with Retrospect 4.0.
4x	NA	12x	1MB	Not compatible with Retrospect 4.0; otherwise, a good performer.
4x	NA	12x	1MB	Most expensive drive with Teac mechanism.
4x	2x	6x	2MB	Good performer, but has huge case; expensive; includes CD-R Access Pro for Finder drag-and-drop copies.
4x	NA	8x	2MB	Average performance; requires a lot of desktop space. More expensive than some CD-RW drives; includes CD-R Access Pro for drag-and-drop copies.
4x	NA	12x	1MB	Not compatible with Retrospect 4.0.
4x	NA	12x	1MB	Not compatible with Retrospect 4.0.
4x	2x	6x	2MB	Good overall performance.
4x	2x	6x	2MB	Good performance; includes good documentation and nice extras.
4x	NA	12x	1MB	Not compatible with Retrospect 4.0.
4x	2x	6x	2MB	Good overall performance.
4x	NA	8x	1MB	Very slow with Retrospect 4.0.
4x	NA	12x	2MB	Good performance, but still slow with Retrospect 4.0; only drive without a built-in drawer.
4x	NA	12x	1MB	Not compatible with Retrospect 4.0.

Since DVD players can play audio CDs and are so new, we thought that they stood a good chance of being Multi-Read capable. We tested four players: all three Sony players we tried, priced from \$599 to \$999, were unable to read the disc. We found only one player that both recognized our disc and played its music—the newest player in the store, the \$599 Panasonic DVD-A310.

Clearly, Multi-Read hasn't been adopted very widely yet, in either the computer or consumer-electronics worlds. Until you and your friends have all con-

verted to Multi-Read-savvy equipment, the appeal of CD-RW discs will be tempered by the currently limited compatibility of the medium.

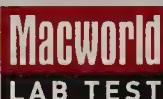
Burning Questions

Since a CD-RW drive does everything a CD-R drive does and more, buying a CD-RW drive would seem to be a better investment than buying one that writes CD-R only. Our lab testing bears out that assumption.

Macworld Lab tested 21 CD-R and CD-RW recorders, but despite different

company logos on the outside, inside they were all quite similar. Two mechanisms, one from Teac and one from Panasonic, made up 11 of the 13 CD-R units we looked at, and the same Yamaha mechanism was under the hood of every CD-RW drive we tested. As you'd probably expect, our test results show that drives with the same mechanism do not offer noticeably different performance (see "Feel the Burn: CD-R and CD-RW Drives Compared").

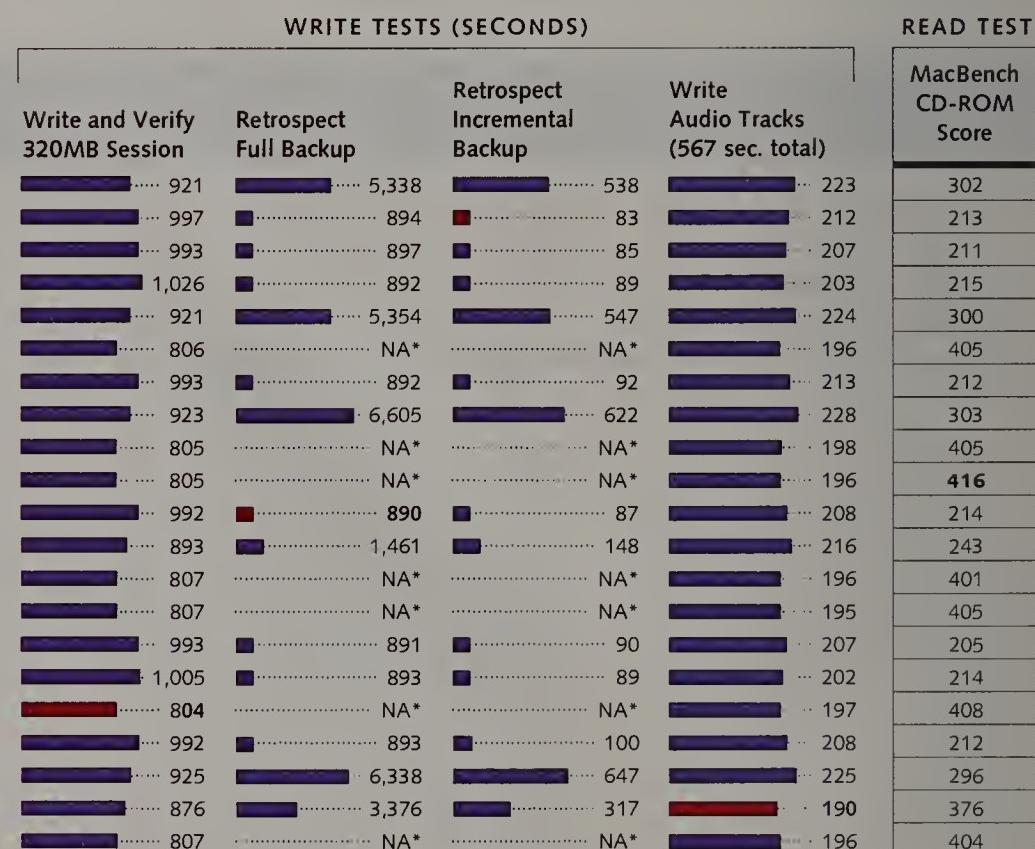
Backup Failures The seven Teac-based recorders—La Cie's (www.lacie.com)



Feel the Burn: CD-R and CD-RW Drives Compared

■ Best overall performance. Shorter bars and lower numbers are better for Write tests. Higher numbers are better for MacBench CD-ROM test. Editors' Choice winners in red. MacBench 4.0 CD-ROM scores are relative to that of the built-in CD-ROM drive in a Power Mac 6100/60, which is assigned a score of 100.

CD-R Drive	Mechanism
APS Technologies CDR 4x8	Panasonic
APS Technologies CDRW Pro	Yamaha
EZQuest Anaboa Jaz 2GB/Y2x4x6	Yamaha
EZQuest 80a Y-CRW 4x2x6	Yamaha
La Cie CDR 4x8x	Panasonic
La Cie CDR 4x12x	Teac
Mediastore AVD 4x2x6 ReWritable	Yamaha
Mediastore AVD 4x8	Panasonic
Mediastore AVD 4x12	Teac
MicroNet Master CD Plus 4x12	Teac
Optima Technology CDWriter	Yamaha
Optima Technology DisKover 1300CDR	Sony
Pinnacle Micro RCD 4x12 Mac	Teac
ProDirect PowerStore 412 CDR	Teac
ProDirect PowerStore 4260 CDRW	Yamaha
Smart & Friendly CD-RW 426	Yamaha
Smart & Friendly CD SpeedWriter	Teac
Smart Storage Solutions 4x2x6YMX	Yamaha
Smart Storage Solutions 4x8MMX	Panasonic
Smart Storage Solutions 4x12PMX	Plextor
Smart Storage Solutions 4x12TMX	Teac



In CD-RW writing mode:

APS Technologies CDRW Pro	Yamaha	1,606
EZQuest Anaboa Jaz 2GB/Y2x4x6	Yamaha	1,606
EZQuest Boa Y-CRW 4x2x6	Yamaha	1,599
Mediastore AVD 4x2x6 ReWritable	Yamaha	1,604
Optima Technology CDWriter	Yamaha	1,604
ProDirect PDI CRW4260	Yamaha	1,603
Smart & Friendly CD-RW 426	Yamaha	1,603
Smart Storage Solutions 4x2x6YMX	Yamaha	1,604

* Not applicable; mechanism is incompatible with Retrospect 4.0.

Behind Our Tests

Macworld Lab tested each drive by creating two CD archives (the Retrospect backups are considered one archive) and an audio CD and by running MacBench's CD-ROM test. In our first test, we timed how long it would take to write 320MB of data in one session to CD. For our Retrospect tests, we ran two backups, recording a total of 345MB of data to the same storage set. We also created an audio CD by recording

two audio tracks totaling 567 seconds. We then ran MacBench's CD-ROM test on each drive. We used CD-R media for all tests and also performed one write session with CD-RW media in CD-RW drives. All times include time to verify the newly written data. Testing was performed on a Power Macintosh 7300/200 with an external 4GB Seagate hard drive.—Macworld Lab testing supervised by Gil Loyola

\$499 CDR 4x12x, Mediastore's (www.mediastore.com) \$519 AVD 4x12, Micro-Net's (www.micronet.com) \$630 Master CD Plus 4x12, Pinnacle Micro's (www.pinnaclemicro.com) \$599 RCD 4x12 Mac, ProDirect's (www.pdisales.com) \$449 PowerStore 412 CDR, Smart & Friendly's (www.smartandfriendly.com) \$549 CD Speed-Writer, and Smart Storage Solutions' (www.smartstoragesolutions.com) \$459 4x12TMX—are clearly the fastest of the bunch at burning and verifying (by dint of the Teac mechanism's 12x speed), but they have a significant drawback: they're currently incompatible with Retrospect. For those who care only about burning CD-R discs quickly, the Teac-based drives perform well.

Since Retrospect is a widely used and ideal piece of software for backing up and archiving data, a drive that does not support it has significantly less value to the Macintosh owner. The Teac-based drives are technically flash-upgradable, but unlike Panasonic, Teac has not made a Macintosh flash utility available; unless you have a PC with a SCSI card, you cannot flash-upgrade your Teac mechanism.

The Panasonic mechanism—at the heart of APS Technologies' (www.apstech.com) \$500 CDR 4x8, La Cie's \$479 CDR 4x8x, Mediastore's \$449 AVD 4x8, and Smart Storage Solutions' \$399 4x8MMX—has limited support for Retrospect, but at least it's just functional enough to work. We were able to run our full suite of tests with these drives, but the drives performed so poorly with Retrospect as to make them unsuitable for backup purposes. And when it came to non-Retrospect CD-R burning and verifying with Toast, the Teac-based recorders consistently outperformed the Panasonic-based ones, which can read only at 8x.

Smart Storage Solutions' \$579 4x12PMX and Optima Technology's (www.optimiatech.com) \$669 DisKover 1300CDR use Plextor and Sony mechanisms, respectively, but both are slower than the Teac mechanisms.

Rewrite Might The CD-RW recorders we tested—APS's \$600 CDRW Pro, EZQuest's (www.ezq.com) \$1,199

Anaboa Jaz 2GB/Y2x4x6, EZQuest's \$599 Boa Y-CRW 4x2x6, Mediastore's \$549 AVD 4x2x6 ReWriteable, Optima Technology's \$799 CDWriter, Pro-Direct's \$559 PowerStore 4260 CDRW, Smart & Friendly's \$699 CD-RW 426, and Smart Storage Solutions' \$589



Burning Love APS Technologies' CDRW Pro is a solid drive, although its power supply is ungainly.

4x2x6YMX—performed roughly equally. We were particularly pleased with how easy it was to upgrade the Yamaha mechanism's firmware with the Mac-based flash utility available on the Yamaha Systems Technology Web site (www.yamahast.com), since not all the drives we tested shipped from the vendors with the latest firmware.

The CD-RW drives we tested can burn CD-R discs at speeds up to 4x, the same speed as the CD-R drives we tested. However, the CD-RW drives we tested can *read* only at 6x, while the CD-R drives can read at speeds up to 12x. The result is that while these CD-RW drives can write to a disc as fast as a CD-R drive can, it takes the CD-RW drives longer to verify what they've written. On average, the Teac-based drives were able to burn and verify our 320MB test archive 19 percent faster than the Yamaha-based drives.

Macworld's Buying Advice

Our all-around favorite drives and Editors' Choice picks are APS's CDRW Pro and Mediastore's AVD 4x2x6 ReWriteable. The CDRW Pro has built-in active SCSI termination, and its fan, while audible, is quieter than a typical computer fan. This drive's most serious shortcoming is its external power supply; the brick and attendant cable aren't a particularly elegant solution.

The AVD 4x2x6 ReWriteable's case is solid and stackable, but it lacks built-in

termination and has a very poorly placed power button that all but invites you to power cycle the drive when all you really mean to do is eject the disc. However, the AVD 4x2x6 ReWriteable is \$50 less than the CDRW Pro. In deciding which drive is for you, you need to weigh the value of the CDRW Pro design against the lower cost, lack of termination, and danger of inadvertent power-downs of the AVD 4x2x6 ReWriteable.

While both the APS and Mediastore drives' Yamaha mechanism isn't as fast at burning CD-Rs as the Teac mechanism is, the Yamaha is adequately quick and fully compatible with Retrospect. Most important, it supports CD-RW, which is already useful for backups and should become significantly more useful for many other applications in the future.

CD-RW is certainly a very young technology with its share of hang-ups. But even setting aside CD-RW features, the CD-RW drives we tested are comparable in terms of writing (but not reading) speed with similarly priced CD-R-only drives. Factor in the potential of CD-RW technology, and it's clear: if you're ready to make the move from compact-disc consumer to compact-disc creator, buying a CD-RW drive is indisputably the path to take. ■

STEPHAN SOMOGYI is a veteran breaker of technology products. He finds writing about the results of such exploits strangely cathartic.

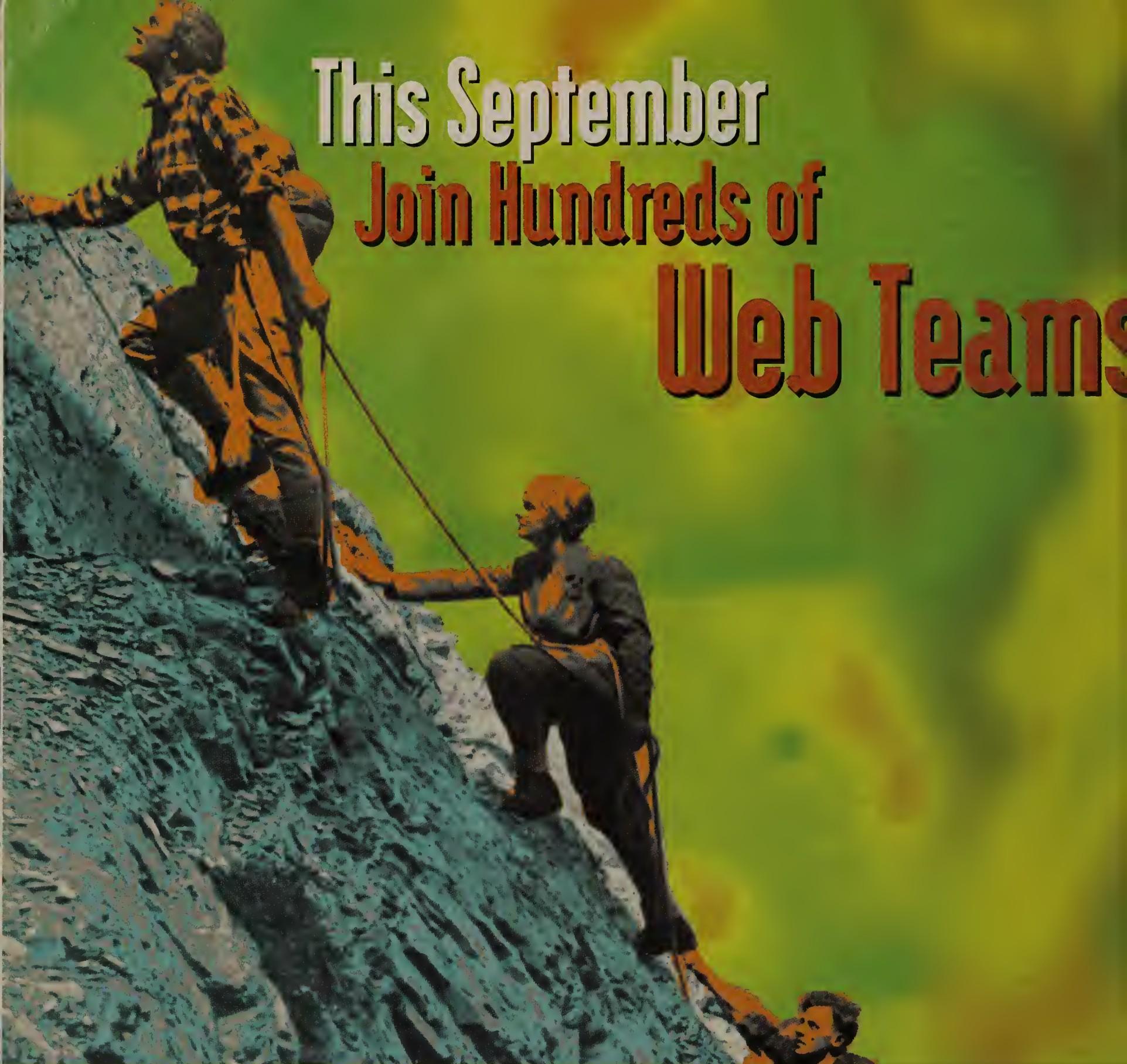
EDITORS' CHOICE

3 1/2 **APS CDRW Pro** This solid CD-RW drive comes with APS's excellent Pro case and built-in active termination, although it does have an ungainly external power supply. **Company:** APS Technologies (816/483-1600, www.apstech.com). **List price:** \$600.

3 1/2 **Mediastore AVD 4x2x6 ReWriteable** The Mediastore case is solid and stackable, yet it lacks built-in termination and has a very poorly placed power button. It's not quite as impressive a drive as the APS CDRW Pro, but it's \$50 cheaper. **Company:** Mediastore (714/974-5551, www.mediastore.com). **List price:** \$549.

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Secrets

Online on the Road

AVOID EXPENSIVE HASSLES GETTING ONLINE AWAY FROM HOME

by Ted Landau

Whether you're on a business trip or a vacation, chances are you'll want to remain connected to the Internet wherever you travel. But unless you prepare in advance, using your PowerBook to get online on the road can be both expensive and frustrating. Here are some tips on how to avoid the online potholes in the road.

Save Dollars When You Dial

Get a Local Number With most ISPs charging a flat monthly rate for online access, your biggest expense in staying connected is the cost of a long-distance phone call. That's why the first thing you should do before leaving home is check with your Internet service provider (ISP) to see if it has a local number at your destination. For example, I use GTE, which maintains a list of local numbers on its Web site (www.gte.net/dialin/). America Online subscriber? Just select Member Services and click on Connecting to AOL.

Get a Toll-Free Number If there's no local number, your ISP may have another money saving option: a toll-free number you can call from anywhere in the country. Although ISPs typically charge you something like \$6 per hour to use this number, it's still likely to be a bargain compared with dialing your home access number from your travel destination.



Don't Charge It to Your Room If you're unable to get a local or toll-free number for your modem access and you're using a long-distance number, avoid charging the cost of the call to your room. It's almost always far cheaper to charge the call to your home phone by using a calling-card number. You can automate the process so that your PowerBook does all the dialing. To do so, add your calling-card number to your phone-number string, such as the string in the Remote Access control panel (see "Dialing for Savings").

Save Time with Setups

Get an Outside Line Before you try to get online from your hotel, you'll probably need to do other modifications to the phone-number string in the appropriate control panel. For starters, there's probably a special digit you need to press to get an outside line. If it's 9, for example, simply add 9 and a comma in front of the phone-number string in the appropriate control panel (such as the PPP or Remote Access control panel). The comma forces *continues*

a brief delay before letting your modem dial the next digit, allowing time for the shift to the outside line. If the delay is not long enough, add more commas. Or add the letter *W* (this should get the modem to pause until it detects a dial tone).

Get Past the Dial Tone Your hotel may use an unusual dial-tone sound that your modem doesn't recognize (or it may have no dial tone at all). If so, your modem will halt with an error stating that it failed to detect a dial tone. To circumvent this, go to the Modem control panel and check the Ignore Dial Tone box.

Switch Settings Quickly In order to use the access number you want, you need to enter it in the appropriate control panel, typically the Mac OS's PPP control panel. However, you don't have to delete the phone number that's already there. Instead, you can set up a separate configuration for every destination (including your home) and then switch among them. Here's how:

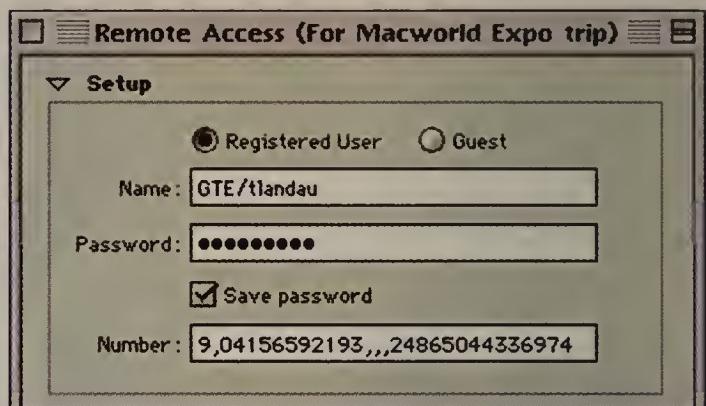
1. Open the PPP (or Remote Access, if you use Apple Remote Access) control panel.
2. Choose Configurations from the File menu.
3. Choose Duplicate, and give the new settings a name (perhaps your destination city).
4. Click on the Make Active button.

5. Enter the new phone number.
6. Close the control panel, and click on the Save button.

When you want your old settings back (or the settings for the next stop on your trip), return to the Configurations window and choose the correct setting. Even better, if you use PPP, get the shareware Control Strip module called OT/PPP Strip (<http://home.ici.net/~customers/djw/otppp/otppstrip.html>). Apple Remote Access comes with its own similar module, called Remote Access Control Strip. With either of these, you can switch configurations instantly from a pop-up menu in the Control Strip. Free-PPP (www.rockstar.com/ppp.shtml), a popular freeware alternative to PPP, has similar capabilities.

Avoid Hardware Hassles

Digital-Phone-Line Danger If you're staying at a hotel that uses a digital phone system, don't use your modem with it—it can fry your modem! Fortunately, there are two good solutions. Your hotel may provide a separate analog-line phone jack



Dialing for Savings To get online from a hotel, your best bet is to find a local number to call. If you must dial long distance, you'll want to use a sequence similar to the one shown here: 9 for an outside line, followed by your ISP number and your calling-card number (to charge the call). The commas provide needed delays between each step.

(often called a data port) specifically for modem use. Otherwise, you can purchase a digital-to-analog converter, such as Inside Line, from SystemSoft (\$119.95; 303/443-2237).

Also, some older hotels may not have the modular jacks needed for modem cables. If so, my best advice is to stay somewhere else. There are other ways to work around this problem, but the hotel might not appreciate your attempts to modify its wiring.

Bring Enough Cord Since a wall jack may not be near where you can set up your PowerBook, bring along an extra-long modular phone cord (at least 12 feet). I also bring an adapter that lets me connect two phone cords together. I use this to connect the phone cord that normally goes to the hotel's telephone with the cord that goes to my modem. This way, I never even have to locate the wall jack, which hotel designers are fond of placing behind a headboard in a nearly inaccessible location.

Bring an Adapter Pack an adapter for converting a grounded, three-pronged plug to a two-pronged one. Without this, you may be unable to plug in your PowerBook's AC adapter to older-style outlets.

Future Travel

Someday, getting your e-mail on the road will be as convenient as turning on a TV. Until that day arrives, the advice given here should get you online as quickly, easily, and cheaply as possible. **m**

Go Mobile, International-Style

IF YOU'RE TRAVELING ABROAD, YOU'LL discover new ways to get overcharged for getting connected. Most important: Do not charge the call to your hotel room—unless you wish to use up your retirement savings while online. Also, if possible, avoid using a U.S. long-distance number. Here are some cost-cutting alternatives:

- Check to see if your ISP has international local numbers (most do not, but IBM.net and AOL are two exceptions). If so, use them.
- When you get to your destination, look for a local ISP that will give you temporary access to its service.

- Use AT&T Direct. With this service, you can dial a toll-free number that gives you a U.S.-based dial tone. It lets you connect abroad just as if you were calling from within the United States. Of course, AT&T charges you for the service, but it's almost

certainly less expensive than calling your ISP directly. The connection will probably be more reliable as well. Call 800/331-1140 for more details.

- Use iPass (www.ipass.com). For a reasonable charge, this service provides local Internet access no matter where you may roam on the globe.

- Carry extra equipment to combat a problem that tends to arise especially in European countries: your out-of-the-country hotel may not use 110-volt AC current. This means you will be unable to use your PowerBook's AC adapter. The telephone outlet may also be different from the modular plug used in the United States. TeleAdapt (www.teleadapt.com) maintains a complete catalog of adapters and accessories designed to solve these dilemmas. Its Web site also has a useful collection of general communications tips for travelers.

Macworld contributing editor TED LANDAU requests your Internet tips. Check out MacFixIt at www.macfixit.com.

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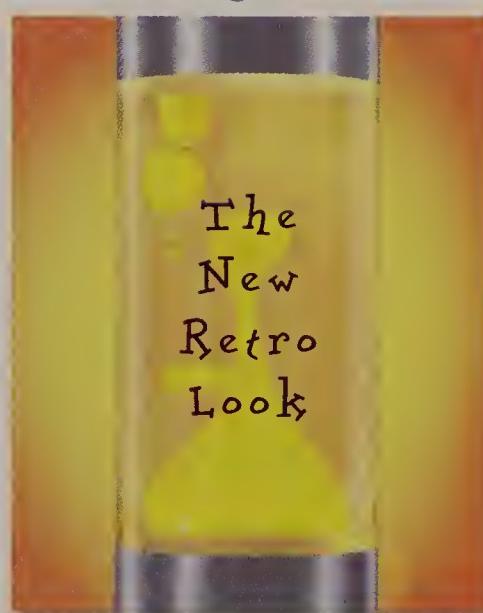
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Quick Tips

Tips, Tricks, and Shortcuts

by Lon Poole

Under Mac OS 8 and 8.1, you can send an instant message to anyone connected to your Mac for file sharing. Colin Foster of Toronto explains how: Open the File Sharing control panel and click the Activity Monitor tab. Hold down the option key and double click the name of any user (even <Guest>) displayed in the Connected Users list. (If you want to send the same message to more than one user, shift-click or ⌘-click to select their names.) In the dialog box that appears, type your message and click OK. The message will pop up on the other user's machine as a small modal dialog box—a fun way to send a friendly "hello."

Printing as PDF

Q. One of Mac OS 8.1's many attractions for me was that LaserWriter 8.5.1 could save a print job as an Adobe Acrobat PDF file. However, I found that option grayed out in the Save As File section of the Print dialog box when using my LaserWriter 4/600 PS. Any thoughts?

ANDREW LENZER
Burien, Washington

A. You need to install Adobe Acrobat Distiller to enable the Acrobat PDF setting for LaserWriter 8.5.1's Save As File option. Distiller is not included with the free Acrobat Reader—it's part of the full \$295 version of Acrobat, which you can buy through retailers (listings provided at www.adobe.com); it's also bundled with recent versions of Adobe PageMaker.

Switching TCP/IP Configurations

Q. My small office has six Macs on an Ethernet network. I want to use TCP/IP to accelerate backup over the network using Dantz Development's Retrospect. This requires setting all the computers' TCP/IP control panels to connect via Ethernet. But one Mac has its TCP/IP control panel set to connect via FreePPP so it can access the Internet by modem, and thus it can't communicate with the backup server. What can I do?

SYLVAIN LEMIRE
Montreal, Quebec, Canada



A. Create two configurations in the FreePPP-enabled computer's TCP/IP control panel: one named "PPP" with settings for the Internet, and one named "Ethernet" with settings for your Ethernet network. For step-by-step instructions, click the question-mark icon in the TCP/IP control panel to access Mac OS Help (Mac OS Guide in Mac OS 7.6.1 and earlier), and double-click the question "Change TCP/IP settings all at once?"

You could switch between these con-

figurations using the TCP/IP control panel's Configuration command, but that's dreadfully tedious. Instead, use a Control Strip module or automate the switching with AppleScript. One such Control Strip module is the \$1 shareware TCP CC by Tim Kelly. Another is the freeware `tcpip_config_cstrip` by Dylan Ashe. You can get either of these from any Info-Mac mirror site (www.photon.com/info-mac/).

To control TCP/IP with AppleScript, you must add a scripting-addition file to the Scripting Additions folder in your System Folder (the Scripting Additions folder in your Extensions folder with Mac OS 7.6.1 and earlier).

You can use Nigel Perry's "postcardware" TCP Config, or the \$5 shareware CC Scripts by Tim Kelly. All this software is available from the Info-Mac Archive.

You can automate switching the TCP/IP configuration with two simple AppleScript applications. One switches TCP/IP to the "PPP" configuration when the computer starts up. The other script application switches to the "Ethernet" configuration after you initiate shutdown but before it starts shutting down, just prior to when the computer anticipates its nightly backup.

With the TCP Config scripting addition installed, use the Script Editor program from your Apple Extras folder to create a new script, and in it type the following:

Set TCP config to "Ethernet"

Create another new script and type the following:

Set TCP config to "PPP"

continues

Merging Data in Excel

Here's an easy method for accumulating several series of related data in a spreadsheet. C. Eugene Burchill of Winnipeg, Manitoba, Canada, developed this method to update a master grade sheet with scores from every quiz taken over a semester by a large university class. First, a machine grades each multiple-choice quiz and generates a text file containing name, identification number, and score for every student. Burchill then opens the text file in Microsoft Excel (version 4.0 or later) and uses this formula to merge it into a master spreadsheet that tabulates all quiz scores over a semester for each student:

**=INDEX(Data Range, MATCH
(Lookup, Match Range, 0), 1)**

You can use the same method to merge responses to survey questions or to make a table of values observed at different times during a science experiment, and spreadsheet-savvy kids could tabulate observed data for school science projects.

To customize this formula, simply replace the italicized terms with cell references as shown in "Data Merge." *Data Range* is the range of cells containing the data to be merged (MERGEFILE!\$C\$6:\$C\$17 in the example). *Lookup* is the cell to match in the master spreadsheet (B6 in the example). *Match Range* is the range of cells containing possible matches to *Lookup* (MERGEFILE!\$B\$6:\$B\$17

in the example). The 0 in the formula specifies that the *Lookup* cell must match one of the *Match Range* cells

Data Merge The formula shown for cell E6 merges data from the spreadsheet on the right to the one on the left.

exactly. The 1 in the formula specifies that only the first column be copied from the *Data Range*.

Enter the formula in the first cell to have it display merged data (E6 in the example). Then use the Fill Down command to copy the formula to other cells that should display merged data (E7:E18 in the example). For this technique to work, *Data Range* and *Match Range* must contain absolute cell references (with dollar signs), and *Lookup* must be a relative cell reference (without dollar signs).

This example shows the data to be merged and its destination in separate spreadsheets, but both can be contained in the same spreadsheet when using Excel 5.0 or later. If they are, omit the spreadsheet name and exclamation point from the beginning of the cell-range references.

the Scrapbook, and use the Paste command. But System 7.X limits the list to about two dozen names (256 characters total). With Mac OS 8 or 8.1, you can copy and paste up to 2,000 names at a time (about 32,000 characters total).

ED BISHOP

Eugene, Oregon

Keep Your Trash

TIP At Ease version 3.0.3, Apple's software for restricting and simplifying access to one Mac by different people, has an annoying feature: it insists on emptying the Trash when you quit working in unrestricted Finder mode, in order to let someone else use the computer in a restricted mode. But you can switch users without emptying the Trash by quitting all open applications and then quitting the Finder using an AppleScript script. You can find at least one script that quits the Finder by searching AOL or the Info-Mac Archive (www.pht.com/info-mac/) for the phrase *script Finder quit*.

DANIEL VANWIE

Whittier, California

The following AppleScript command does the trick:

tell application "Finder" to quit

Type this command into a new script window using the Script Editor program in your Apple Extras folder. Then save this script as an application: in the Save dialog box, set the Kind option to Application and leave the Stay Open option turned off. If you name this application • Go To At Ease and save it in your Apple Menu Items folder, it will appear conveniently at the bottom of your Apple menu.—L.P. m

LON POOLE answers readers' questions and selects reader-submitted tips for this monthly column. His latest book is *Macworld Mac OS 8 Bible* (IDG Books Worldwide, 1997).

All shareware and freeware mentioned in Quick Tips is available from the Macworld Online software library (www.macdownload.com).

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When you save these scripts, set the Save dialog box's Kind option to Application and leave its Stay Open option turned off. Put the script application that switches to the "Ethernet" configuration in the Shutdown Items folder, and put the script application that switches to the "PPP" configuration in the Startup Items folder. Then set the Retrospect Remote control panel to wait for backup at shutdown.

As an alternative to this configuration switching, you could use Sustainable Softworks' IPNetRouter (\$89; www.sustworks.com) or Vicom Internet Gateway (\$249 and up, based on number of users; 650/691-9520, www.vicomtech.com) to maintain TCP/IP connections via Ethernet and PPP simultaneously.

Copy Many Icon Names

TIP You may know that to copy and paste a list of icon names, you select the icons in the Finder, use the Copy command, switch to a text editor or

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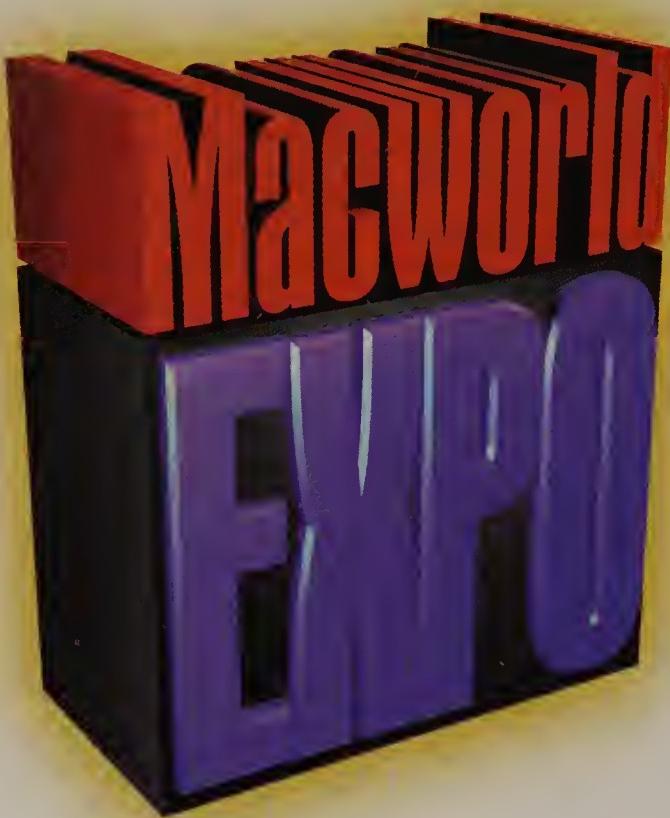
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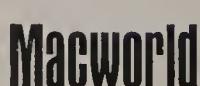
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MOTION

PowerPoint Goes Interactive

Authoring Multimedia Projects in PowerPoint 98

by Jim Heid

Your assignment: create an interactive self-guided tour that will run at the local tourism office. The project has some QuickTime and QuickTime VR movies, an audio soundtrack, and the usual text and images. You'll need to create some buttons that enable users to branch to different screens. And the chamber of commerce would appreciate a button that links to its Web site.

Your tool: Microsoft PowerPoint 98.

PowerPoint? The preferred weapon of conference-room hypnotists everywhere? Actually, yes. PowerPoint 98, which is the most creative occupant of Microsoft's Office 98 suite (see *Reviews*, June 1998), has some impressive interactivity features and can handle every one of the requirements I just outlined. PowerPoint is also easier to learn than a multimedia-authoring program.

Still, PowerPoint was designed primarily for sequential, conference-room-style slide presentations, and getting it to behave like an interactive authoring program isn't always straightforward.

Set the Stage

When you choose New from the File menu, PowerPoint 98 wants to hold your hand by offering a variety of wizards and canned designs. For an interactive project, choose the Blank Presentation option; it's in the New Presentation dialog box's General tab.

Even then, however, PowerPoint 98 insists on helping (stop already!), offering a series of AutoLayout screens for your first slide. Click on the AutoLayout named Blank (it looks like an empty square), and then click on OK.

An interactive project benefits from a

consistent look from one slide to the next—perhaps a text heading, a horizontal line, and a Quit button on each slide. PowerPoint's Slide Master is the place to put these. To access it, choose Slide Master from the View menu's Master submenu.

You can make interactive projects look nicer by displaying their elements on background textures. PowerPoint includes an assortment of attractive textures. To apply a texture to every slide, switch to Slide Master view and then choose Background from the Format menu. In the Background dialog box, choose Fill Effects from the pop-up menu at the bottom of the dialog box. In the Fill Effects dialog box, click on the Texture tab and then double-click on the desired texture. Finally, click on Apply.

Build a Foundation

PowerPoint 98's enhanced branching features are particularly good for interactivity. They enable you to create buttons in your project that let viewers jump to URLs and that take viewers from one slide to another even if the destination isn't the next slide in sequence (see "Branch Out"). But to create branching buttons, the slides you want to branch to must already exist. So your first step in creating an interactive project is to create those slides. You don't have to complete every slide up front—you can create blank slides as placeholders.

Manipulating Media

Just like any grown-up authoring program, PowerPoint 98 can import files in *continues*



Adding Movies and Sounds

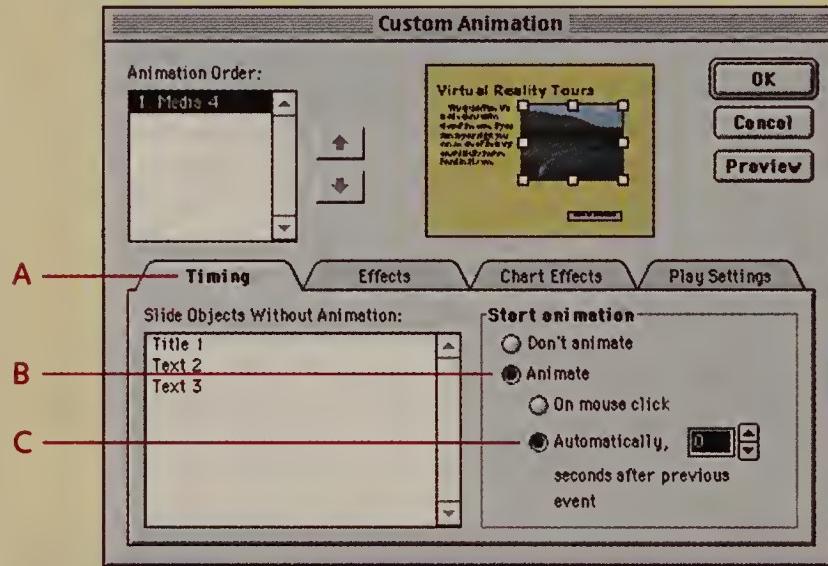
YOU CAN IMPORT QUICKTIME MOVIES AND AUDIO FILES AND add them to slides via the Insert menu's Movies And Sounds submenu. Here are some helpful tips for easier implementation.

Make Movies or Sounds Play Automatically

Normally, PowerPoint 98 doesn't play a movie or sound file automatically, instead requiring you to click on it to start playback. But there may be times when you want automatic playback—for instance, you might want music to play as soon as a particular slide is displayed.

To specify that a movie or sound play automatically, select the movie or sound and then choose the Slide Show menu's Custom Animation command. Animation and motion options live in the Timing tab (A). To have the movie or sound play automatically, click on the Animate button (B) and then click on the Automatically button (C).

There is one drawback to this technique: the movie or sound will play back automatically only once, the first time its slide appears. If a user navigates back to that slide, the movie or sound won't play automatically. Alas, Microsoft says there's no way around this limitation.



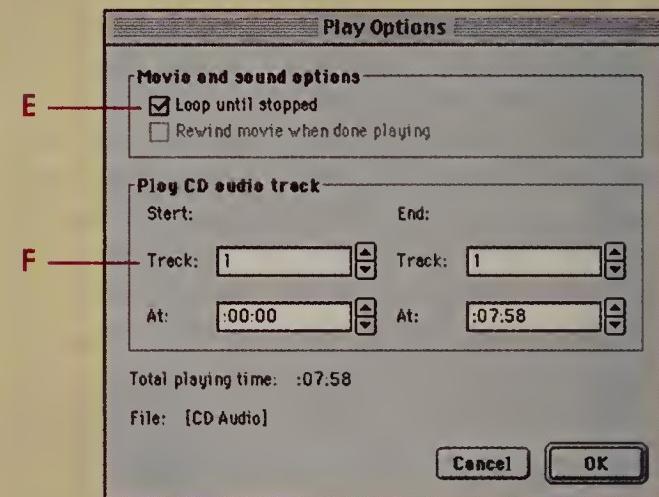
Hide a Sound

PowerPoint uses a small icon (D) to indicate an imported sound. If you don't want the icon fouling your screen design, drag it off the edge of the slide layout, as shown here.



Use Space-Saving Soundtracks

PowerPoint can play tracks from an audio CD—a great way to add music to a project without increasing file size. To insert a track, choose Play CD Audio Track from the Insert menu's Movies And Sounds submenu. In the Play Options dialog box, specify which track you want to play and, if desired, the start and end times. Check Loop Until Stopped (E) to loop the soundtrack for the duration of time you specify below (F).



a variety of formats, including most popular graphics formats as well as sound files and QuickTime movies.

Bring on the Graphics To add a graphic to a slide, switch to slide view, pull down the Insert menu, and choose From File from the Picture submenu. You can use the Format menu's Format Picture command to create a border around the image and even to adjust its brightness and contrast.

Bring on the Movies and Sounds To add a movie or sound to a slide, use the Insert menu's Movies And Sounds submenu. Here you find an appealing way to add background music to a project: have PowerPoint play one or more

tracks of an audio CD installed in the machine that's playing the presentation. This enables you to have a CD-quality soundtrack without surrendering megabytes of hard-disk space to audio files (see "Adding Movies and Sounds").

Note that if you plan to move a presentation containing QuickTime movies over to a Windows machine, you'll have to reinsert the movies by using the Windows version of PowerPoint. Microsoft says this limitation is due to the way PowerPoint 98 handles QuickTime movies on the Mac.

Create Original Graphics PowerPoint 98 also provides tools for creating text, lines, and common shapes. With

the Drawing tool bar, you can create text boxes whose margins and indents you can control with a Word-like ruler. And with the Office 98 WordArt module, which you can access by clicking on the WordArt icon in the Drawing tool bar or choosing WordArt from the Insert menu's Picture submenu, you can create finely spaced headings with exotic effects—a talent even major-league authoring programs can't match.

But unlike most authoring programs, PowerPoint 98 doesn't create antialiased (smooth-edged) text, so large text can appear chunky. One workaround for this is to use Gregory Landweber's SmoothType (www.kaleidoscope.net/greg/), a \$5

Branch Out

BRANCH ANY ON-SCREEN ELEMENT TO ANOTHER SLIDE—OR LINK IT TO A WEB PAGE—VIA A SIMPLE, CLICKABLE BUTTON.

1 Make a Button

PowerPoint provides several button-making options. The Action Buttons submenu in the Slide Show menu provides commands for drawing several types of common buttons, but the buttons have a cheesy, pseudo-3-D look to them. I prefer the Drawing tool bar's AutoShapes pop-up menu. The round-rectangle tool (**A**) draws buttons that resemble standard Mac OS buttons.

To add text after you've drawn the button, control-click on the button and choose the Add Text command from the shortcut menu that pops up. You can format the resulting text, using the Format menu's Font command.

You can also turn a text box into a clickable button: after typing the text, select the text box and then use the Drawing tool bar or the Format menu's Text Box command to create an outline around the text box and to specify a fill color.

Workspace hint: Dotted lines at the top of an Office 98 pop-up menu (**B**) indicate that you can turn it into a floating palette by clicking on the dotted lines and dragging the pop-up away from the tool bar.



TIP If you're still building your project and haven't yet created all the slides, you can use PowerPoint's outline view to add placeholders for slides you want to branch to. It's a quick way to create slides without going through all the slide-creation dialog boxes. In outline mode, every time you press return, you add a new slide.

shareware extension that antialiases all the text on the Mac's screen (alas, slowing down text-heavy displays in the process).

Get the Show on the Road

PowerPoint 98 can run slide shows in several modes. For an interactive project, you'll want to choose the kiosk mode, which locks out the keyboard's arrow keys. You use the Slide Show menu's Set Up Show command to specify kiosk mode.

Previous versions of PowerPoint included a viewer application you could distribute freely with your presentation to enable users who didn't have PowerPoint to view your efforts. Microsoft says that it plans to ship a free viewer for PowerPoint 98. But until it ships, you'll need to license and install PowerPoint 98 on the computer that will be running the final project.

As an interactive authoring tool, PowerPoint 98 has some weak spots—

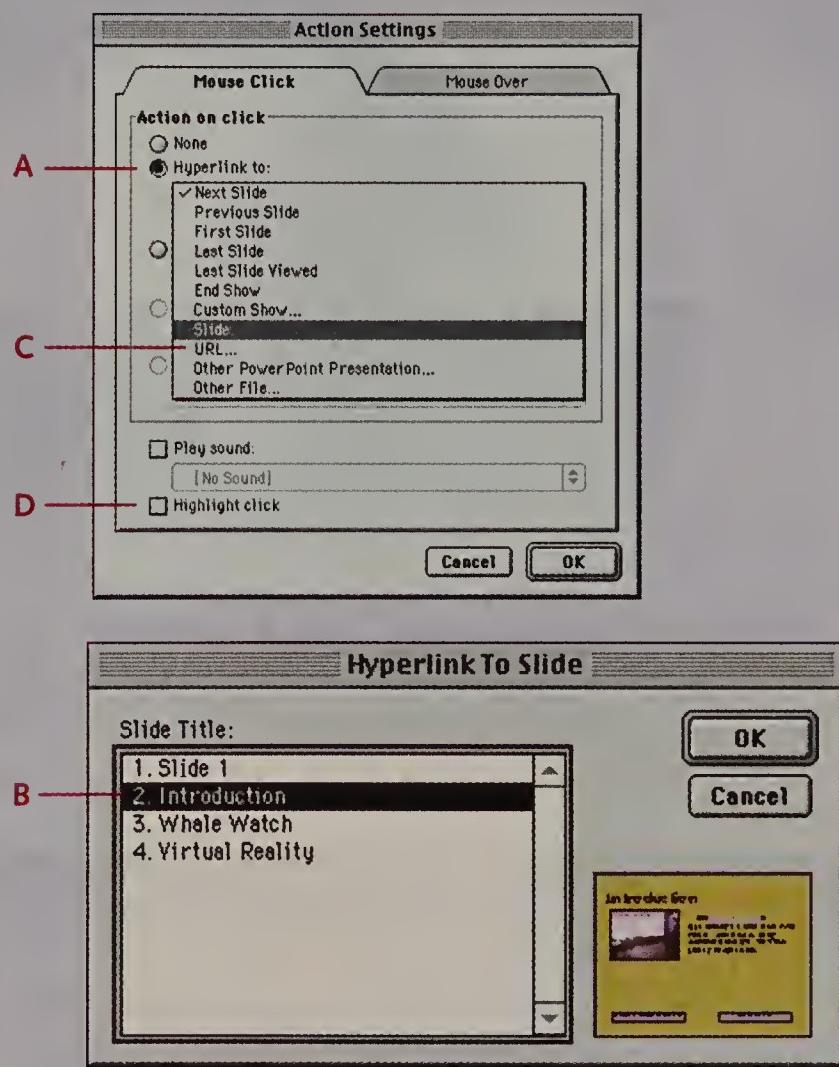
2 Add Branching

Once you've created the button, you're ready to specify what happens when a user clicks on it. Do this with the Slide Show menu's Action Settings command.

To create a branch to a specific slide, click on Hyperlink To (**A**) and choose Slide from the pop-up menu. Click on OK, and in the resulting dialog box, choose the name of the slide you want to branch to (**B**).

To create a link to a Web site, choose URL (**C**) from the pop-up menu and type the site's address. When a user clicks on your button, PowerPoint 98 will launch Internet Explorer and open the URL.

Check Highlight Click (**D**) if you want your button highlighted after a user clicks on it.



such as its inability to display the standard QuickTime-movie controller bar—and it does require some awkward workarounds. All in all, however, its interactive capabilities are impressive. PowerPoint 98 is no Macromedia Director, but it's definitely the most entertaining member of the Microsoft Office workforce. **m**

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Mastering PageMaker's Control Palette

Get to Know This Misunderstood Tool, and You'll Work More Efficiently

by Olav Martin Kvern

QuarkXPress users have long coveted Adobe PageMaker's Control palette. From this single tool bar you can move, skew, flip, rotate, and resize any element on the page; crop imported graphics; and set type. But although users agree that the Control palette is better than its closest counterpart in XPress, the Measurements palette, they're often put off by the sheer amount of *stuff* it contains (see the sidebars below). If you can overcome your feelings of dread, however, you'll find that the Control palette offers the best way—and in some cases the *only* way—to perform certain layout tasks.

Not Dangerous, Just Misunderstood

The beauty of the Control palette is that it's several palettes in one: it changes depending on the object you select. When you click on an imported graphic, for example, controls appear for changing its position, width, height, rotation, and cropping. If you click on the Text tool or selected text, the palette offers character- and paragraph-formatting options. When you select a line, rectangle, or ellipse, you see yet another set of controls.

You can tell what kind of element you've selected by looking at the leftmost control, the Apply button. It displays an icon representing the selected shape (rectangle, ellipse, or polygon), graphic

(TIFF, EPS, or PICT), group of objects, or text. You rarely have to click on the Apply button, though—changes usually take effect immediately.

One of the palette's most useful—and most misunderstood—controls is the proxy, to the right of the Apply button. It's simply a stand-in for the element you've selected; changes you make to the proxy are reflected in the selected object.

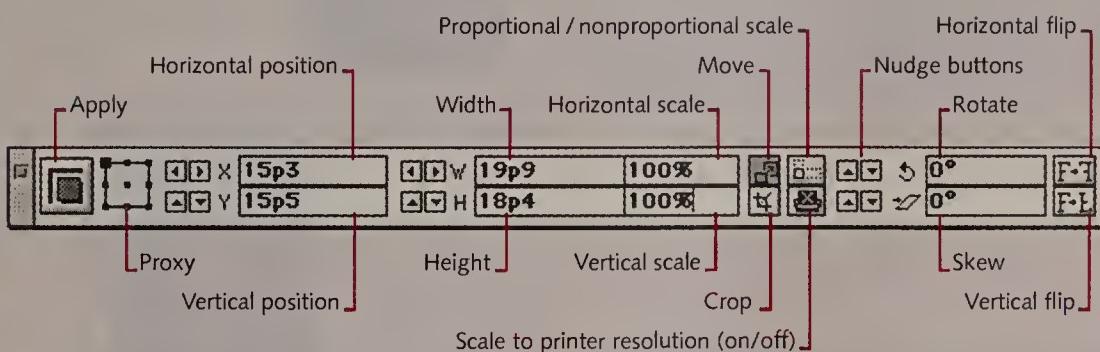
Clicking on a highlighted point in the proxy also lets you switch between move mode and stretch mode. When you enter move mode, the reference point you've selected becomes an anchor—everything happens around the selected *continues*

Get Control of Your Graphics

The Control palette displays different fields and buttons depending on the object you've selected. For example, when you select a graphic, such as this TIFF image,

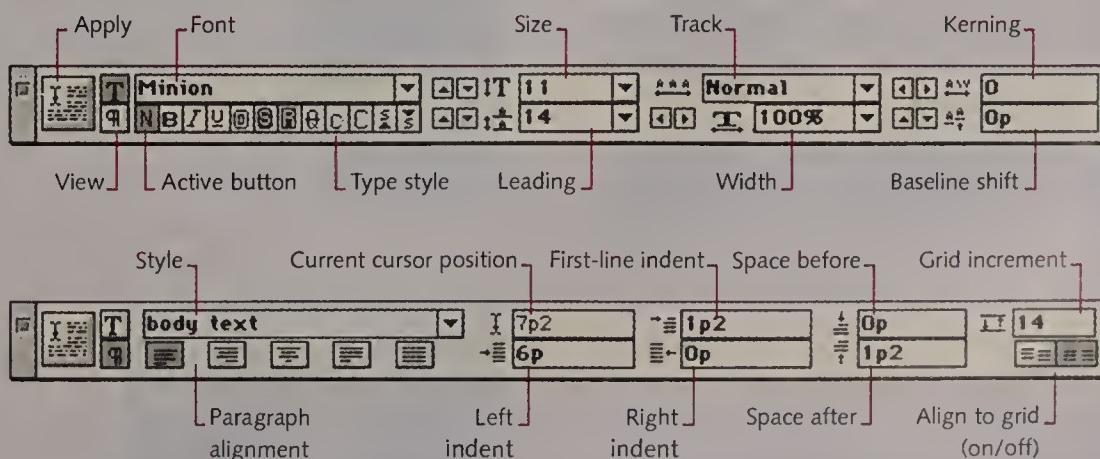


you see one set of options; when you click on a text box (see below), you get a completely different set of controls.



Tame Your Type with Text Controls

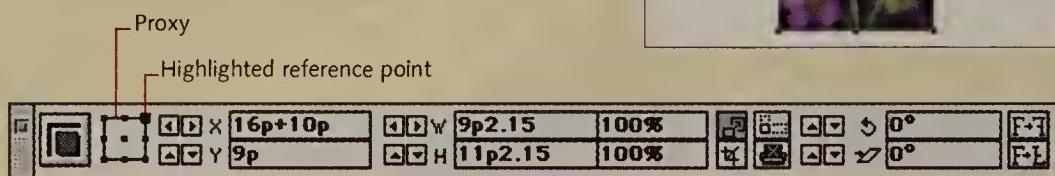
When you click on the Text tool in a text block, or simply select text, PageMaker displays the Control palette's Character view (top) or Paragraph view (bottom). To switch between the two views, press $\text{⌘}-\text{shift}-\text{'}$ (grave accent). In the Character view, use the arrow keys to navigate the type-style buttons; press the spacebar to click on a button.



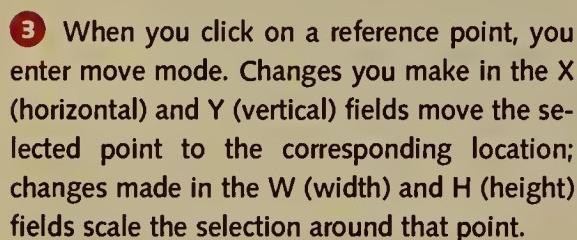
The Perplexing Proxy

WHAT MAKES PAGEMAKER'S CONTROL PALETTE SPECIAL IS THE PROXY: IT LETS YOU specify what part of an object you're moving, rotating around, or scaling from. Even PageMaker's cousin, Illustrator—the only other application with a proxy—doesn't pack this much power into such a small space. Here's how it works.

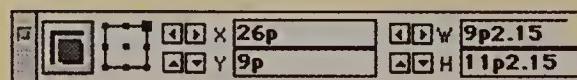
- Select an object (in this case, a TIFF image). Notice that the reference points on the proxy correspond to the selection handles bordering the selected object.



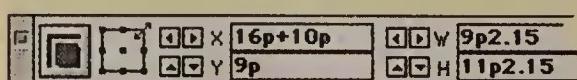
- Click on a reference point on the proxy. That point is highlighted and becomes the part of the image the Control palette will act upon. Here, I've selected the upper right point on the proxy. If I were to rotate the object, it would pivot on its upper right corner.



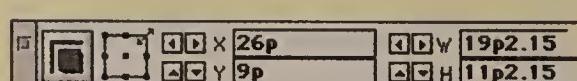
Here, I've added 10 picas to the X field in move mode.



- Click on the highlighted point in the proxy again to switch to stretch mode (arrows appear around the point). Changes you make in the X and Y fields will stretch the selected point to that position.



Here, I've added 10 picas to the X field in stretch mode.



point. In stretch mode, it's the point on the proxy *opposite* the selected point that stays put. (See "The Perplexing Proxy" for details.)

Next to each field in the palette is a set of arrow buttons that nudge the value in the field by some amount, making it easy to experiment with type and graphics. When you click on a nudge button, PageMaker applies the change immediately—there's no need to click on the Apply button.

The numbers in the X and Y fields show you, respectively, the horizontal and vertical position (on the page or the pasteboard) of the selected point in the proxy. Don't let these numbers scare you—they're just like the two-dimensional coordinate system you learned in geometry class. The only difference is that the vertical (Y) axis of PageMaker's coordinate system is *upside down*: the zero point of the coordinate system starts at the zero point on PageMaker's rulers. By default, vertical distances are measured from the top of the page.

Take the Palette for a Spin

Once you've familiarized yourself with the fields and buttons, it's time to put the Control palette through its paces. The following are a few of my favorite Control palette techniques. Give 'em a try—they'll give you a feel for the power and flexibility the Control palette offers.

Change the unit of measurement. To change the unit of measurement (picas, inches, millimeters, or ciceros) for all fields in the Control palette, you simply change the publication's measurement system in the Preferences dialog box (⌘-K). But you can also change the unit of measurement for a single field: if you repeatedly press ⌘-option-M when that field is active, PageMaker cycles through the available measurement systems. To select one, press enter or tab. That measurement system will remain in effect until you close the Control palette or quit PageMaker.

You can also enter values in the Control palette's X, Y, W (width), and H (height) fields, using any measurement system you want, without having to make a trip to the Preferences dialog box.

When you want	Type
6 picas, 3 points	6p3
113 points	0p113
2.4 inches	2.4i
31 millimeters	31m
2 ciceros, 1 didot	2cl

Do palette arithmetic. Typing an absolute page location—such as 3.75i—in the Control palette's fields is a great way to move an object to a specific place. But what if you want to move an object some distance *relative* to its current location? Use arithmetic. To move an object 3 picas to the right of its current location, type **+3p** after the value in the X field.

You can add, subtract, multiply, and divide in any field. To make an object half its current width, type **/2** after the value in the W field. You can even enter multiple arithmetic operations in a field, such as **+16.8*5**.

You can't however, mix units of measurement and do arithmetic at the same time. That is, you can't enter **+3.2i** in a field containing **2p6**—you have to change the field to inches beforehand.

Change the nudge amount. To change the effect of a nudge button, go to the Control-palette section of the Preferences dialog box and enter the new number in one of the nudge fields. If you want the objects you're manipulating to snap to guides or rulers as you click on the nudge buttons, turn on the Use "Snap to" Constraints option; if you want to position objects freely, make sure this option is disabled.

To multiply the effect of the nudge by a factor of 10, simply hold down the **⌘** key as you click on one of the nudge buttons. For example, if you've entered 1 point in Preferences' Vertical Nudge field, **⌘**-clicking on one of those buttons moves the object 10 points.

Nudge leading amounts. You can easily nudge type sizes up or down, using keyboard shortcuts (**⌘-shift->** and **⌘-shift-<**), but there's no corresponding command for increasing or decreasing leading values. That's too bad; a keyboard shortcut for leading would make it easier to add (or remove) just enough leading to make a text block fill a column or a page.

Fortunately, the Control palette lets you adjust the leading of selected text by using the nudge buttons next to the Leading field. Each click increases or decreases the leading by $\frac{1}{10}$ point; **⌘**-click on the nudge buttons to increase or decrease the leading by 1 point.

Create a style shortcut. To create a new paragraph style based on the format of the currently selected text, enter a name for the new style in the Style field of the Control palette's Paragraph view. If the name isn't already taken, PageMaker asks

Mouse-Free Navigation

YOU CAN OPEN THE CONTROL PALETTE, NAVIGATE THE FIELDS AND BUTTONS, APPLY changes, and close the palette—all without ever taking your hands off the keyboard. Here are some quick ways to get around.

Press	When you want to
⌘-' (apostrophe)	Display or hide the Control palette.
⌘-` (grave accent)	Move the cursor to the most recently used Control-palette option. Once you've activated a Control-palette button or field, PageMaker directs your keystrokes to the Control palette.
tab	Move ahead one field or button.
shift-tab	Move back one field or button.
left or right arrow	Switch from one button to another in a group of buttons.
spacebar	Press an active button.
enter	Apply palette changes and work directly in the page layout.
shift-enter	Apply palette changes and continue working with the Control palette.
⌘-shift-` (grave accent)	Switch between Paragraph and Character views.
keypad keys	Select points on the proxy (when active). For example, 5 corresponds to the center handle, 7 to the upper left handle, and 3 to the bottom right handle. Pressing the key corresponding to the currently selected point toggles between move mode and stretch mode.

if you want to create a new style based on the example you've selected; click on OK. PageMaker creates the new style and applies it to the selected paragraph.

Edit a style shortcut. When the Control palette's Paragraph view is visible, hold down the **⌘** key and click on the style name to display the Style Options dialog box.

Redefine a style shortcut. To redefine a style based on the formatting of a sample paragraph, select the paragraph and **⌘**-shift-click on the style name in the Control palette's Paragraph view. PageMaker displays an alert asking if you want to override the style's definition with the attributes of the paragraph you've selected; you do, so click on OK.

Set a tab at the current cursor position. At some point, you'll probably want to set a tab at the current cursor position in a line of text. To do this, move the cursor to where you want to set the tab and then display the Paragraph view of the Control palette. Read the value in the Current Cursor Position field (it's the only field that's not editable). Press **⌘-I** to display the

Indents/Tabs dialog box, enter the current location of the cursor (the value from the field) in the Position field, and choose Add Tab from the pop-up menu.

Type ahead. When you're typing font names in the Font field or style names in the Style field, PageMaker matches the characters you type with the list of fonts or styles you have available. When it finds a match, it enters the name of the font or style in the field. This means you don't have to type **Zapf Chancery** to apply that font—PageMaker will probably find it after you type **Z**.

No Fear

Once you get to know the Control palette, you'll find yourself wondering how you ever got along without it. Make friends with the numbers, and you can start taking advantage of one of PageMaker's most powerful timesaving features. **m**

OLAV MARTIN KVERN is a software developer, illustrator, graphic designer, and writer. He is the author of *Real World FreeHand 7* (Peachpit Press, 1997).

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Retrain Your Fingers

by David Blatner

QuarkXPress 4's introduction of Bézier drawing tools is cause for joyous celebration. You no longer have to leave QuarkXPress and launch an illustration program just to draw a simple shape or put text on a curve. While XPress doesn't give you nearly as much power for drawing as programs such as Adobe Illustrator and Macromedia FreeHand, it does let you make basic Bézier shapes with similar pen tools, anchor points, and handles. However, there are some features unique to QuarkXPress. To accomplish any of the tasks in the lessons below, follow my pointers. **m**

Four Lessons in QuarkXPress Paths

1. Manipulate Your Boxes and Paths

EDIT A PATH OR BOX AFTER YOU DRAW IT Edit as you would in a drawing program, but make sure the Shape option (Item: Edit: Shape) is turned on. When it's off, you can change only the item's width and height.

TURN A PATH INTO A PICTURE OR TEXT BOX Hold down the option key while selecting the Bézier box from the Shape submenu (Item: Shape).

TURN A BOX INTO A PATH Select the Bézier path from the Shape submenu (Item: Shape).

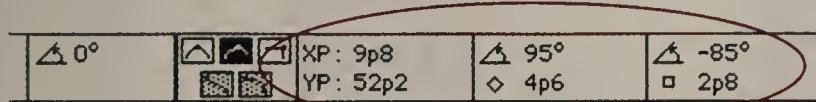
(Note that I'm making a distinction between paths, which are always open at each end, and boxes, which are always closed.)

2. Take Control of Paths

JOIN TWO PATHS Place the paths so that the two ends you want to join are within six points of each other. Then select Join Endpoints (Item: Merge: Join Endpoints).

MOVE A SINGLE POINT ON A PATH First select the path, then select the point. You can move the point by dragging it or by pressing the arrow keys. To move the selection in 0.1-point increments, hold down the option key while pressing the arrow keys.

MOVE A POINT WITH GREATER PRECISION Set the value of the point and its control handles in the right side of the Measurement palette (shown below).



3. Drawing Tips and Shortcuts

SAVE FRUSTRATION WITH PEN TOOLS QuarkXPress 4 offers two kinds of drawing tools: the Bézier pen tools and the freehand tool (not to be confused with the program of the same name). If you have the hands of a surgeon, you might be able to draw with the freehand tool; otherwise, I advise sticking to the Bézier pen tools.

CREATE A CORNER POINT Click anywhere, using one of the Bézier pen tools.

CREATE A CURVE POINT Click and drag, using one of the Bézier pen tools.

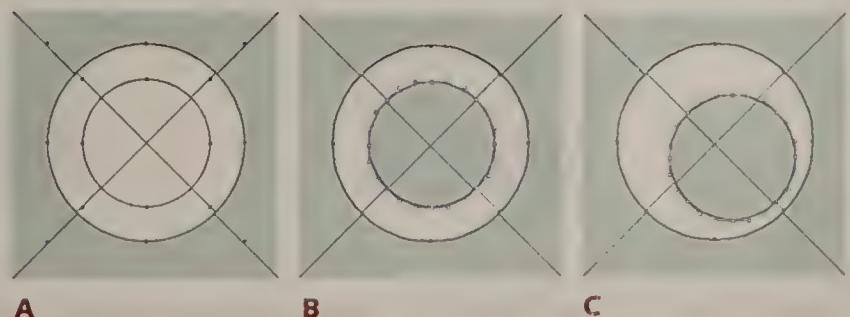
TURN A CURVE POINT INTO A CORNER POINT Before you finish a path or box, hold down the control and ⌘ keys while dragging the curve point's control handle. Or ⌘ -option-click on either the point itself (to make the control handles retract to zero, which turns the point into a corner point) or one of the control handles (to retract just that one handle).

END A PATH OR A BOX Double-click on the page, or switch to a different pen tool.

4. Create Compound Items

CREATE A SINGLE BOX THAT INCLUDES MORE THAN ONE BOX In this example, I created a bagel shape (A), selected two concentric circles, and (B) chose the Difference option (Item: Merge: Difference).

MOVE THE ENTIRE INSIDE CIRCLE INDEPENDENT OF THE OUTSIDE CIRCLE Select all the points on the inside circle's subpath by shift-clicking on each point, double-clicking on one point, or selecting one point and then pressing ⌘ -shift-A (C).



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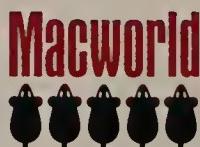
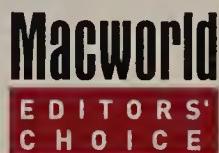
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The Power of Photoshop's Pen Tool

Capture Shapes Accurately and Efficiently

by Chris Lehan

Adobe Photoshop's pen tool doesn't have to be daunting. It follows the same concept as those connect-the-dots puzzles you did as a kid, except that it adds Bézier curves to its arsenal of dot connectors. They make things a bit more complex, but they let you create a path that accurately outlines even the most convoluted shapes. You can then easily save that path, edit it, and later turn it into a selection or a clipping path.

Three Types of Pens

Photoshop 5.0 has three different pen tools. The freeform pen tool is modeled after, and works just like, the freeform pen tool in Adobe Illustrator. It's a good

tool for creating rough outlines in an image, but these outlines will almost always need some tweaking. To make tweaking easier, Adobe created the magnetic pen tool, which intelligently finds edges of contrast in an image and snaps the path to those edges. The magnetic pen can save you a lot of time when you're creating complex clipping paths, but to create truly accurate pen paths, you need the third type of pen—called simply the pen tool. (This type of pen is also the one you have in Photoshop 4.) It lets you place anchor points strategically and constrain them when possible.

From Pen to Path

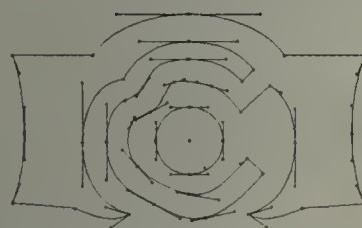
To outline an object with the pen tool, you set points around the edge of the

object. Simply click to create straight line segments, and click and drag to create arcs that follow the shape of the curve (see "Basic Lines, Curves, and Connectors"). From this series of anchor points and line segments, Photoshop creates a Work Path, which appears in the Paths palette. The Work Path is just temporary information until you double-click on the Work Path name to save the path with a new name.

Each path name can include any number of separate (noncontiguous) paths. When a path name is active and you start drawing another set of points, Photoshop adds that information to the active path. To create a separate path, choose New Path from the Paths palette *continues*

Basic Lines, Curves, and Connectors

WHEN YOU OUTLINE SYMMETRICAL CURVES AND STRAIGHT lines, it pays to constrain the segments to get horizontal, vertical, or 45-degree lines and uniform curves.



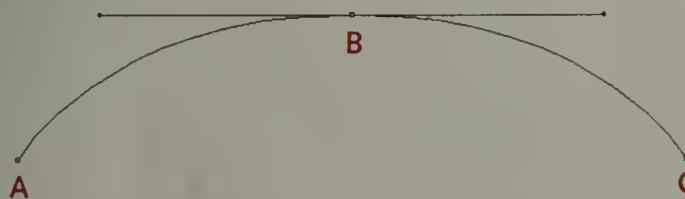
Finished outline



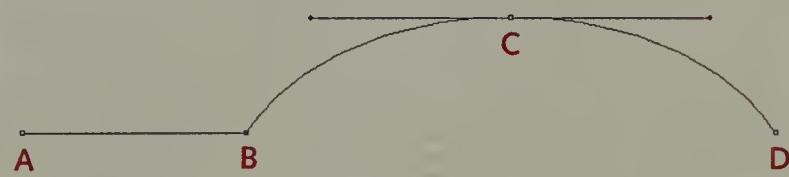
Original image

STRAIGHT LINE SEGMENTS To start a segment, click and release the mouse. To end it, hold down the shift key and click again.

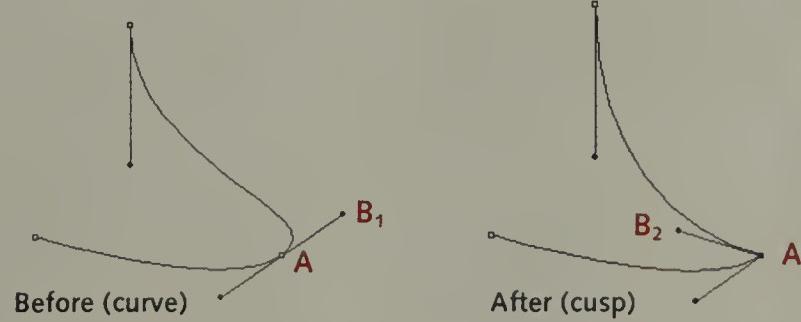
CURVE SEGMENTS (A) Click and release the mouse. (B) Click and drag, holding the shift key. (C) Click and release the mouse.



STRAIGHT LINE AND CURVE (A) Click and release the mouse. (B) Hold down the shift key and click and release the mouse. (C) Click and drag, holding the shift key. (D) Click and release the mouse.



CUSP POINTS On a curve point (A), using the direct select (arrow) tool, hold down the control key and click one of the directional handles (B₁). Drag the handle in the direction you want it to go (B₂). This makes the directional handles independent of each other, allowing you to drag them in different directions.



Outlining: A Few Pointers

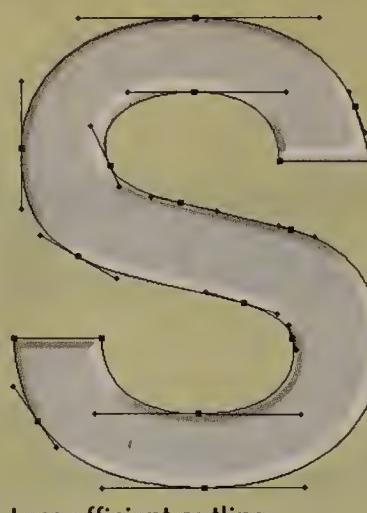
KEEP THE POINTS TO A MINIMUM, WHETHER YOU'RE OUTLINING GEOMETRIC OR IRREGULAR SHAPES.

- 1** How many points does it take to outline the letter S? An experienced Photoshop user at my office got it down to 18 (left). Believe it or not, it can be done with 12 (right).

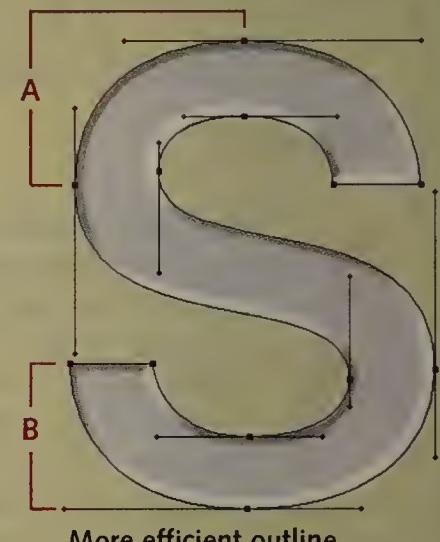
A Place anchor points strategically. For geometric shapes, especially, you need to place anchor points only on a corner or on the flat part of a curve. (Since images are made up of pixels, every curve has a flat edge, which you can see if you zoom in on the image. Place the anchor point in the middle of the flat part of the curve.)

B Constrain segments and directional handles. Whenever possible, use the shift key to constrain straight-line segments and directional handles of curves to ensure perfectly straight lines and symmetrical arcs.

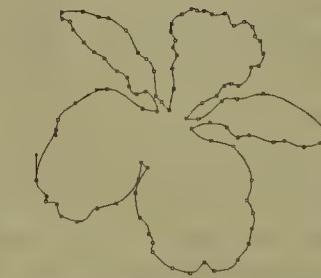
TIP If you're dealing with a perfectly circular segment, you can even reduce the number of points to two.



Less efficient outline



More efficient outline



Original image with outline

- 2** When outlining this flower, I looked for areas that resembled the curves of the S and constrained those points. There was no need to constrain the irregular shapes, but I made sure to drag the directional handles toward the next point I was going to place along the curve. Note that although my path doesn't follow the edges exactly, I made sure the curves looked smooth. When outlining an irregular shape, such as that of a flower, you have more leeway because the viewer has no set expectation for the shape.

Finished outline (top) and original image

menu. You can also deselect the current path (click outside the name in the Paths palette) and just start drawing. Photoshop creates a new Work Path, which you can save and rename.

The Power of Paths

Once you've outlined the shape as closely as you want (see "Outlining: A Few Pointers"), you're ready to put the power of paths to use.

Paths into Selections There are many ways to make selections in Photoshop, but there are times when using the pen tool works best. This is because your eyes can perceive subtle differences in shapes, while Photoshop relies on information such as color and brightness. For example, have you ever tried to use the magic-wand tool to isolate an object from a background of a similar color—

say, a green ball from a green lawn? If the pixels in the object and the pixels surrounding the object are too similar in color, it's practically impossible. No matter how complex the image, if you can see its edges, you can use the pen tool to select it. The only time to avoid using the pen tool is when selecting objects that have fuzzy edges, such as those with hair, fur, or feathers. Selecting such objects is best done with channel masks.

To turn a path into a selection, choose the Make Selection command from the Paths palette or click on the dotted circle icon (the third icon from the left) at the bottom of the Paths palette.

Paths into Clipping Paths The pen tool lets you create precise clipping paths for exporting selective parts of an image into other programs. While you can turn any selection into a path and

then make it into a clipping path, you have less control over how Photoshop draws that path. You can adjust the tolerance setting, but you usually get either too many points or a choppy outline. With the pen tool, you can use as few or as many points as you wish and place them exactly where you need them.

And More There's a lot more you can do with the pen tool. For example, you can stroke a path with any of Photoshop's painting tools, or fill it with a color or pattern. You can even copy and paste paths between Photoshop and Illustrator. However you choose to use the pen tool in Adobe Photoshop, the power of paths can take you a long way. **m**

CHRIS LEHAN teaches Intermediate and Advanced Photoshop for Hennepin Technical College, in Minneapolis.

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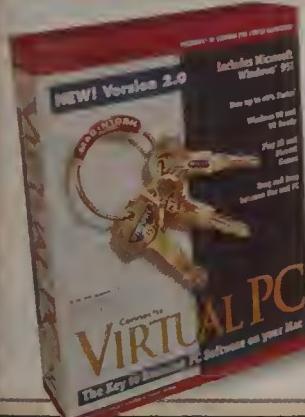
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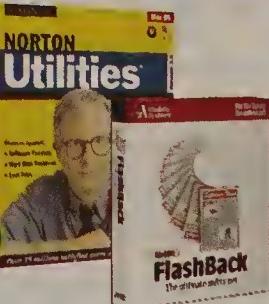


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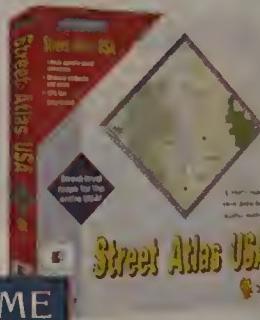
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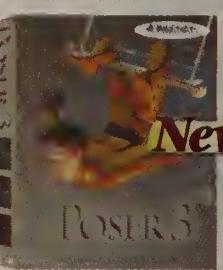
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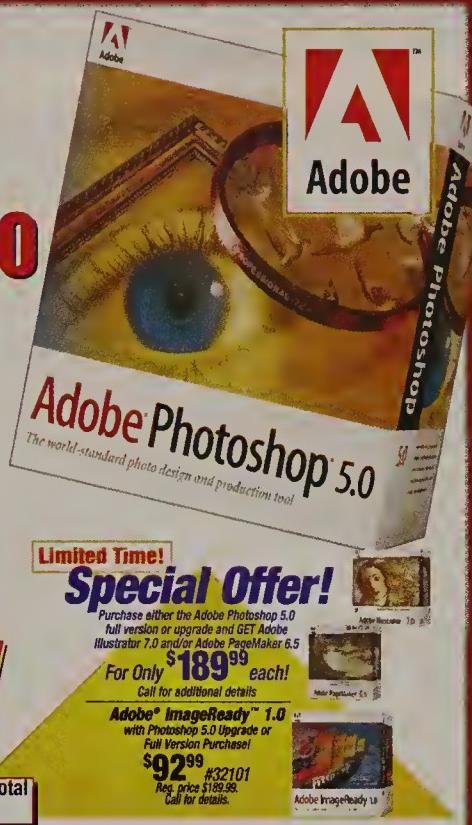
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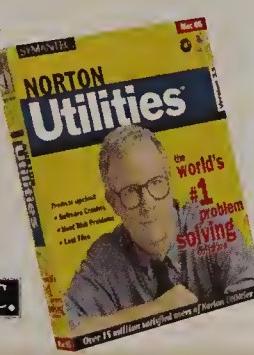
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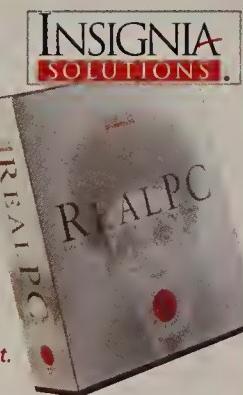
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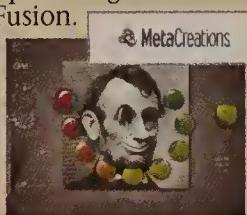


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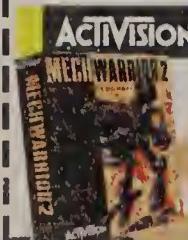


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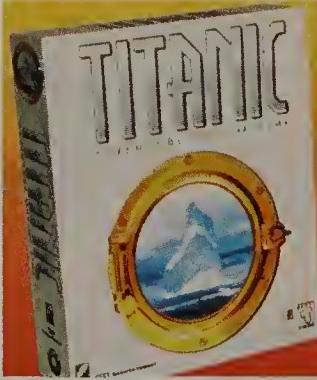
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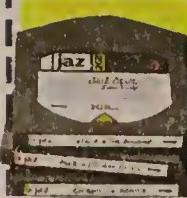
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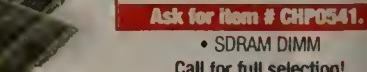
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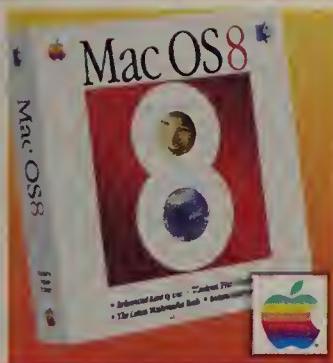
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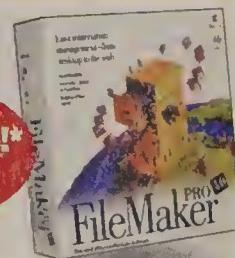


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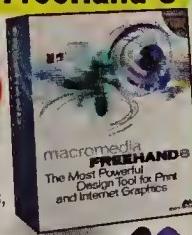


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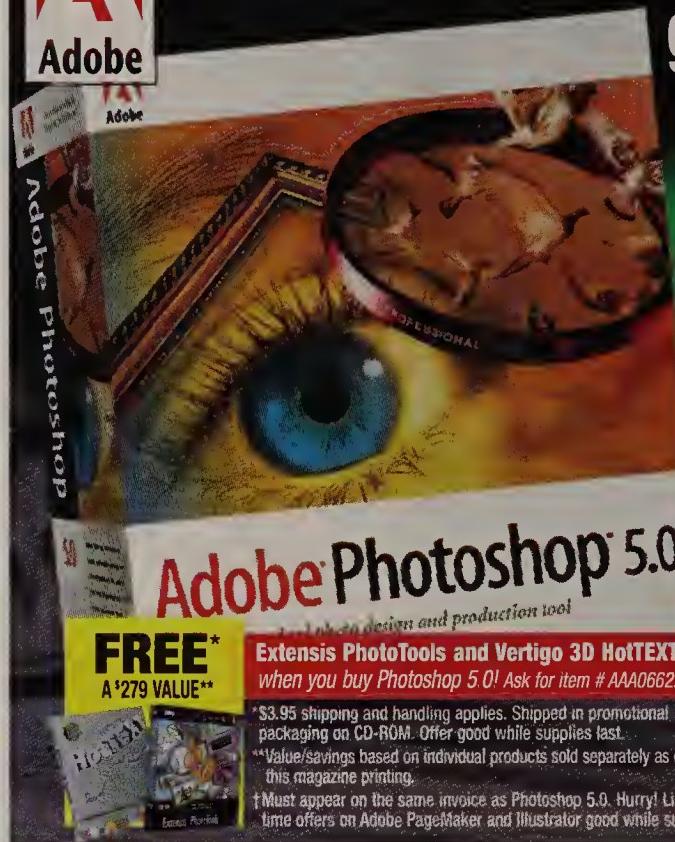
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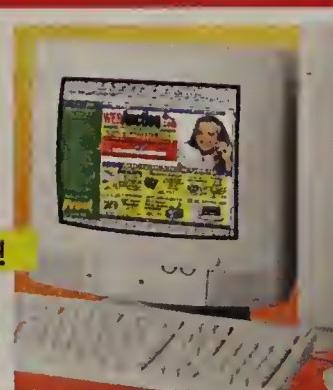
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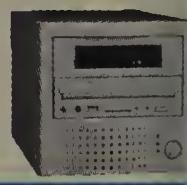
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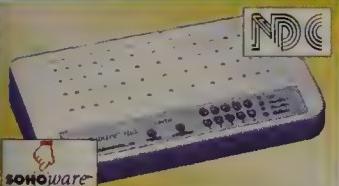
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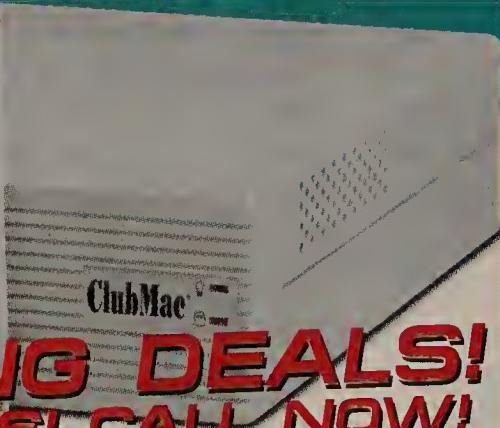
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18.2GB Barracuda 18	ST118273N	7.1ms	7200	\$1259	\$1329	
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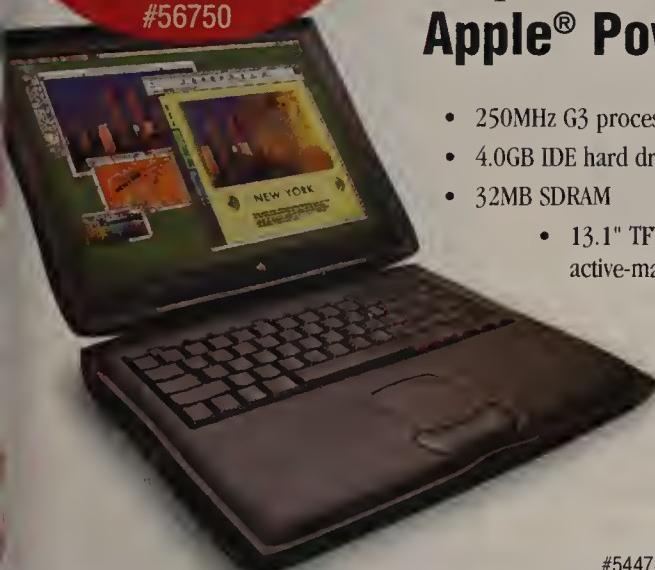
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Model	Description	EL	Internal	Pro
APS I 9000	IBM Ultrastar 9ES, 8715GB, 7200 rpm	\$629 ⁹⁵	\$639 ⁹⁵	\$669 ⁹⁵
APS I 18000	IBM Ultrastar 18XP, 17501GB, 7200 rpm	1,279 ⁹⁵	1,289 ⁹⁵	1,359 ⁹⁵
APS Q 2000	Quantum Fireball ST, 2079MB, 5.4K	189 ⁹⁵	199 ⁹⁵	249 ⁹⁵
APS Q 3000	Quantum Fireball ST, 3118MB, 5.4K	199 ⁹⁵	209 ⁹⁵	289 ⁹⁵
APS Q 4000	Quantum Fireball ST, 4110MB, 5.4K	249 ⁹⁵	269 ⁹⁵	329 ⁹⁵
APS Q 6400	Quantum Fireball ST, 6236MB, 5.4K	349 ⁹⁵	359 ⁹⁵	419 ⁹⁵
APS Q 8000	Quantum Fireball ST, 8191MB, 5.4K	479 ⁹⁵	489 ⁹⁵	529 ⁹⁵
APS Q 4500	Quantum Viking, 4345MB, 7200 rpm	259 ⁹⁵	279 ⁹⁵	389 ⁹⁵
APS Q 9000	Quantum Atlas II, 8682MB, 7200 rpm	559 ⁹⁵	569 ⁹⁵	629 ⁹⁵
APS ST 4300	Seagate Barracuda, 4340MB, 7200 rpm	499 ⁹⁵	519 ⁹⁵	599 ⁹⁵
APS ST 9000	Seagate Barracuda, 8683MB, 7200 rpm	749 ⁹⁵	759 ⁹⁵	809 ⁹⁵
APS ST 18000	Seagate Barracuda 18200GB, 7200 rpm	1,579 ⁹⁵	1,599 ⁹⁵	1,689 ⁹⁵
APS ST 4500	Seagate Cheetah, 4348MB, 10,000 rpm	589 ⁹⁵	609 ⁹⁵	659 ⁹⁵
APS ST 9100	Seagate Cheetah, 8681MB, 10,000 rpm	929 ⁹⁵	939 ⁹⁵	989 ⁹⁵

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APS I 18000 W	IBM Ultrastar 18XP, 17501GB, 7200 rpm	1,279 ⁹⁵	1,289 ⁹⁵	1,359 ⁹⁵
APS Q 4500 W	Quantum Viking II, 4345MB, 7200 rpm	379 ⁹⁵	399 ⁹⁵	489 ⁹⁵
APS ST 4300 W	Seagate Barracuda, 4340MB, 7200 rpm	519 ⁹⁵	529 ⁹⁵	629 ⁹⁵
APS ST 9000 W	Seagate Barracuda, 8683MB, 7200 rpm	759 ⁹⁵	779 ⁹⁵	869 ⁹⁵
APS ST 18000 W	Seagate Barracuda 18200GB, 7200 rpm	1,489 ⁹⁵	1,519 ⁹⁵	1,599 ⁹⁵
APS I 9100 W	IBM Ultrastar 9ZX, 8705GB, 10,000 rpm	899 ⁹⁵	919 ⁹⁵	979 ⁹⁵
APS ST 4500 W	Seagate Cheetah, 4348MB, 10,000 rpm	609 ⁹⁵	619 ⁹⁵	679 ⁹⁵
APS ST 9100 W	Seagate Cheetah, 8681MB, 10,000 rpm	959 ⁹⁵	989 ⁹⁵	1,079 ⁹⁵

APS IDE DRIVES

Model	Description	Internal
APS 2000 ATA	Quantum Fireball ST, 2014MB, 5400 rpm	\$135 ⁹⁵
APS 3000 ATA	Quantum Fireball ST, 3118MB, 5400 rpm	159 ⁹⁵
APS 4000 ATA	Quantum Fireball ST, 4136MB, 5400 rpm	169 ⁹⁵
APS 6400 ATA	Quantum Fireball ST, 6236MB, 5400 rpm	199 ⁹⁵
APS 8000 ATA	Quantum Fireball ST, 8063MB, 5400 rpm	259 ⁹⁵

APS POWERBOOK STORAGE

Model	Description	Internal
APST 3000	Toshiba MK3205MAV, 3000MB, 4200 rpm IDE	\$299 ⁹⁵
APST 810	Toshiba MK1926FBV, 810MB, 4000 rpm SCSI	449 ⁹⁵

APS REMOVABLE DRIVES

Model	Description	SR 2000	Pro
APS SQ 5200	SyQuest 5200, 190MB	\$389 ⁹⁵	N/A
APS Jaz II	(with 1 cartridge) 2GB	N/A	\$499 ⁹⁵
Jaz II EKO	In EKO case (with 1 cartridge) 2GB	479 ⁹⁵	N/A

APS MO DRIVES

Model	Description	SR 2000	Pro
APS 640 MO	Fujitsu M2513A2#N	\$349 ⁹⁵	\$349 ⁹⁵
APS 2.6GB MO	Sony SMO-F544, 2.4GB	1,489 ⁹⁵	1,599 ⁹⁵
APS 5.2GB MO	Sony SMO-F551, 5.2GB	1,799 ⁹⁵	1,869 ⁹⁵

APS CD-ROM/CD-R/CD-RW DRIVES & MASTERING SYSTEMS

Model	Description	External
APS CD24	24X CD-ROM in Slimline Case	\$119 ⁹⁵
APS CD32	32X CD-ROM in Slimline Case	149 ⁹⁵
APS CD Changer	Nakamichi 5 Disc/16X CD-ROM, Pro Case only	259 ⁹⁵
APS CD-R 4X8S	4X record/8X read CD-R in Pro Enclosure	459 ⁹⁵
APS CD-R Pro	4X record/6X read CD-R in Pro Enclosure	499 ⁹⁵
APS CD-RW	2X record/6X read CD-RW in Pro Enclosure	479 ⁹⁵
APS CD-RW Pro	4X record/6X read/2X rewrite CD-RW, Pro Enclosure	559 ⁹⁵
APS 8GB/CD-R Sys.	Q 8000 Hard Drive & 4X record/6X read CD-R, Full Height Enclosure	979 ⁹⁵
APS Jaz II/CD-RW Sys.	Jaz 2GB & 4X record/6X read/2 write CD-RW, Full Height Enclosure	999 ⁹⁵

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Model	Description	Internal	External
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APS HyperDAT®	DDS-2DC, 8GB	549 ⁹⁵	599 ⁹⁵
APS HyperDAT® Pro	DDS-2DC, 8GB	749 ⁹⁵	799 ⁹⁵
APS HyperDAT® III	DDS-3DC, 24GB	1,029 ⁹⁵	1,079 ⁹⁵
APS Mini Library	4mm DDS-2 AutoLoader, 64GB	N/A	2,399 ⁹⁵
APS DLT40	DLT 4000, 40GB	N/A	2,819 ⁹⁵
APS DLT70	DLT 7000, 70GB	N/A	6,399 ⁹⁵
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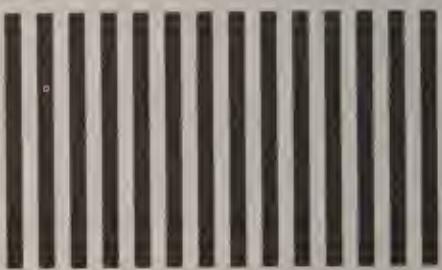
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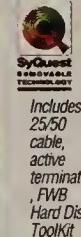
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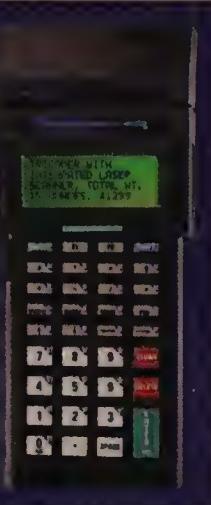
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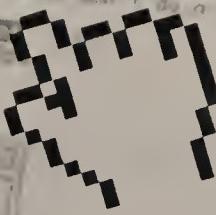
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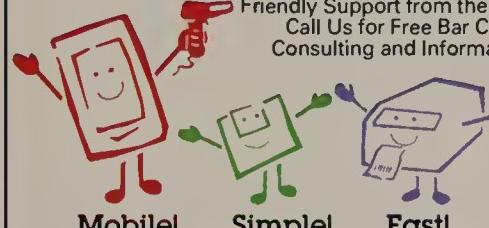
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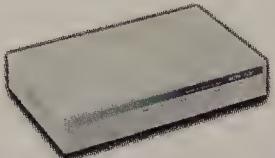
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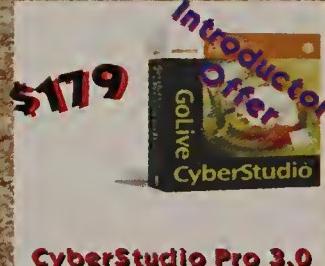
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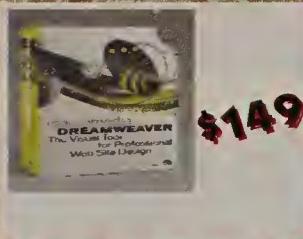


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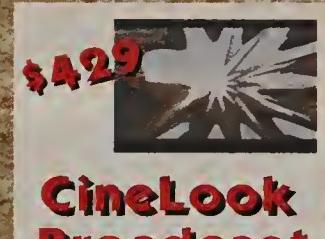
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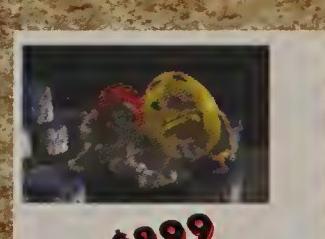
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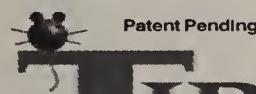
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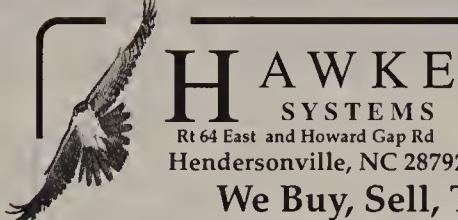
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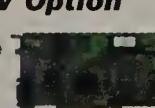


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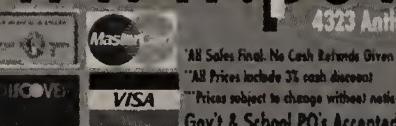
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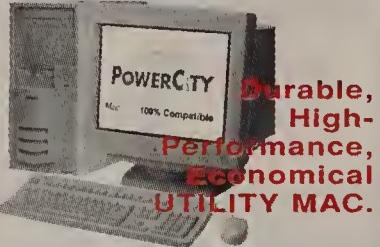
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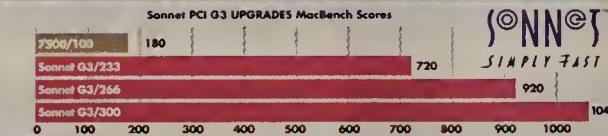
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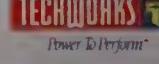
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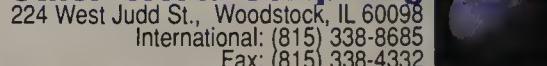
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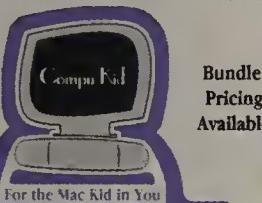
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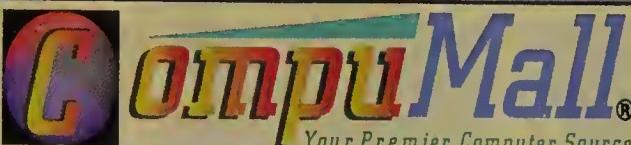
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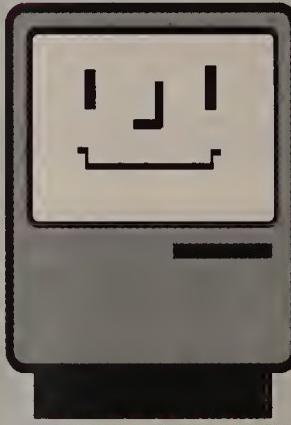
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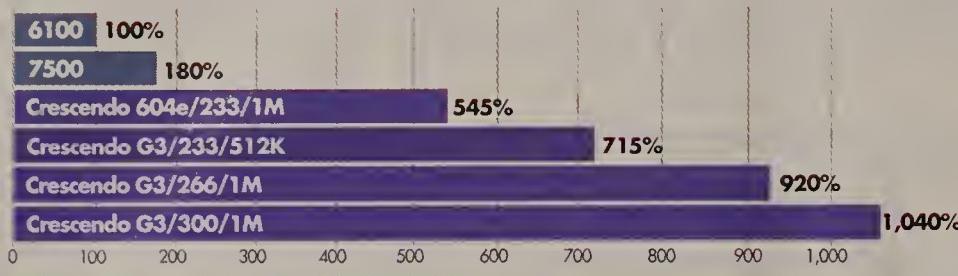
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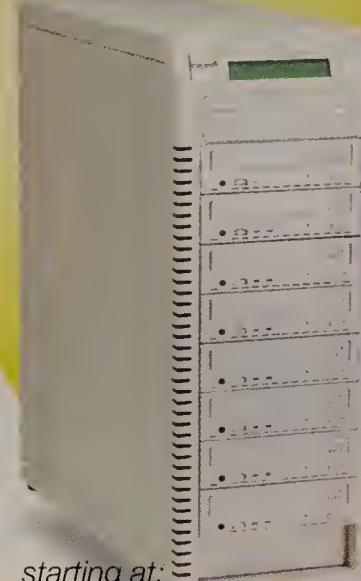


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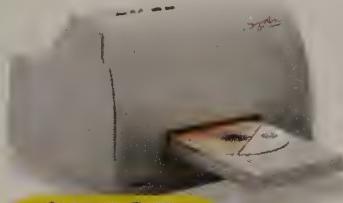
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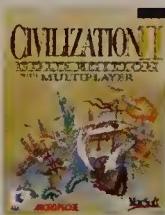
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Macworld

The Desktop Critic

by David Pogue

Software Therapy

AT \$150 AN HOUR, CAN ANYONE CURE MICROSOFT GUILT?

I've got a serious problem. Doc, you've got to help me!"

"What seems to be the trouble?"

"I hate Microsoft!"

"Congratulations—you're normal. Next patient!"

"No, wait. You don't understand!"

"Feet off the rug, please. What don't I understand?"

"I hate the way Microsoft destroys innovative start-up companies. Its business tactics are reprehensible. And when Bill Gates comes on TV in that fake sweater and pretends he's benevolent, I get physically ill."

"Listen, I've got real patients with real problems, so if you'll just—"

"I have a real problem, dammit!"

"Ooh! Well! Other than a touchy streak eight lanes wide, what is it?"

"I'm starting to like Microsoft software. . . . Hey, Doc, what are you doing with that syringe?"

"I think I've finally found my breakthrough case to present at the Software Therapy Expo. Mind if I run a few tests?"

"Get away from me with that thing!"

"All right, all right. I'm sorry."

"It's Word 98. I've fallen in love with Word 98: the speed, the sound effects, even the little tool bars. . . ."

"Don't tell me: you even drew little tiny pictures for all your buttons."

"Doesn't everyone?"

"You know, there are some very fine assisted-living communities in this area—"

"And then there's Max."

"Max?"

"The little animated Mac in the Help window. When you haven't typed anything for a while, he starts getting punchy. The other night, he started dismantling himself like a Rubik's Cube. I started worrying: 'Oh my God. I'm boring him.' And then—"

"I'm afraid to ask."

"I had to take a phone call. Max got so

bored that he heaved a big sigh and keeled over. There was this sound like machinery shutting down"

"This is a problem?"

"Don't you get it? I killed him!"

"You what?"

"I bored him to death. I should have kept writing! I should have looked up a Help topic! I could have saved him!"

"Have a tissue."

"Thanks"

"Feet off the rug, please."

"But it's not just Word 98, you know. For years, I'd been using Netscape Navigator, just like we anti-Microsoft Mac

changed. It's got a menu of dates—with submenus listing sites you visited each day. No more, 'What was that site I visited last Tuesday?' It autocompletes URLs for you. It lets you turn off animated GIFs—talk about restoring sanity, Doc! And it's fast, and it never crashes—"

"You're using Explorer 4.0?"

"Please! I'm just troubled, Doc, not certifiable."

"Forgive me."

"I'm running 4.01. Anyway, I just started thinking: You know? For the first time, Microsoft has started putting in features I can actually use!"

"It must have been an accident."

"So then I had to buy some plane tickets. Do you know that on Microsoft's travel-agency Web site, Expedia.com, you can actually pick the seats you want by clicking on an airplane seating chart?"

"I can scarcely contain myself."

"I don't know what to do; I hate Microsoft, but I'm kind of loving its software."

"I think I know what your problem is. You've got Microsoft Guilt."

"Microsoft Guilt? Jeez, I don't remember that one. Did it come in the Value Pack folder?"

"It's not software, you fool. It's a syndrome!"

"Oh my God! Is it bad?"

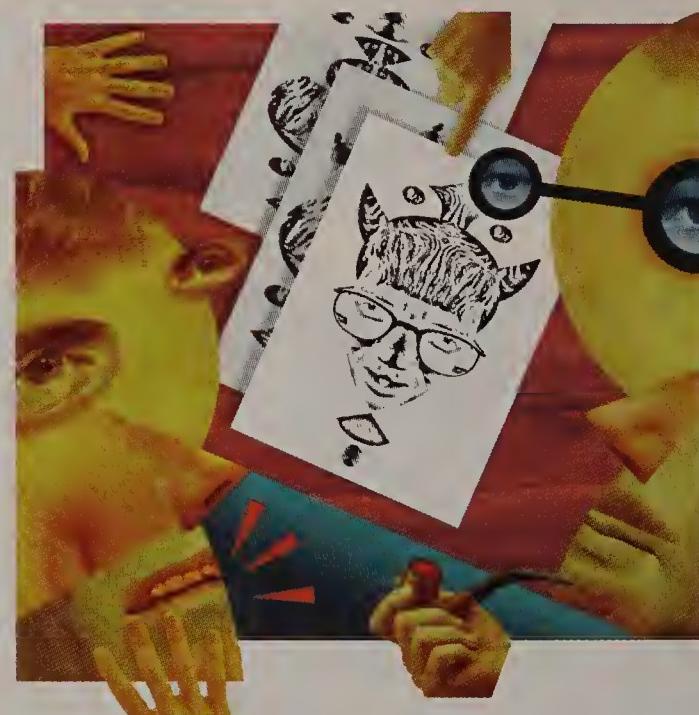
"It's sweeping the nation."

"Is it treatable?"

"But I'm afraid we're out of time."

"No, wait! Just tell me! Am I doomed? Tell me; I can take it! I've got to know!"

"See you next week." ■



users are supposed to. And it kept unexpectedly quitting. And for the longest time, I thought it was my fault. But then I was at my twelve-step meeting—"

"Which is?"

"AOLaholics Anonymous"

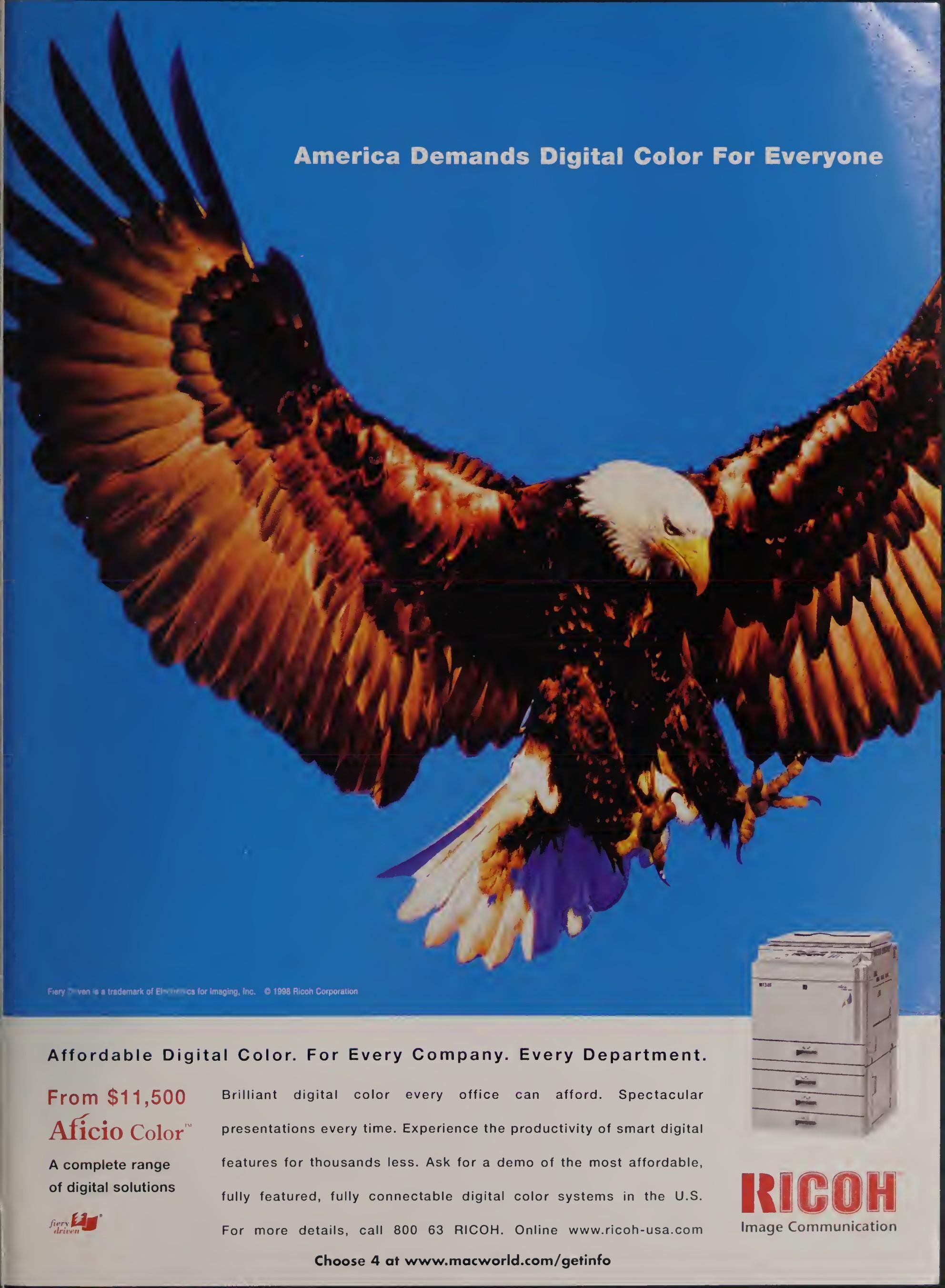
"I should have known."

". . . . and everyone started standing up and saying, 'Netscape locks up on me, too!' It suddenly hit me: hey, I'm an empowered individual. I can switch!"

"So you tried Microsoft Internet Explorer?"

"And let me tell you, Doc, my life

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